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Railway & Commercial Gazette

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LONDON, JULY 13, 1956

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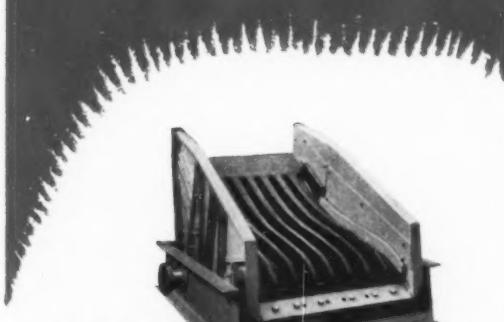
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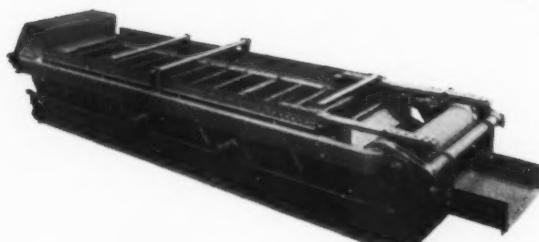
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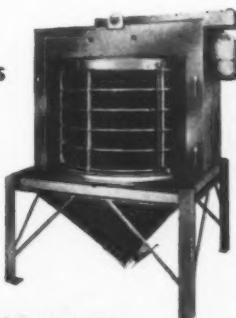
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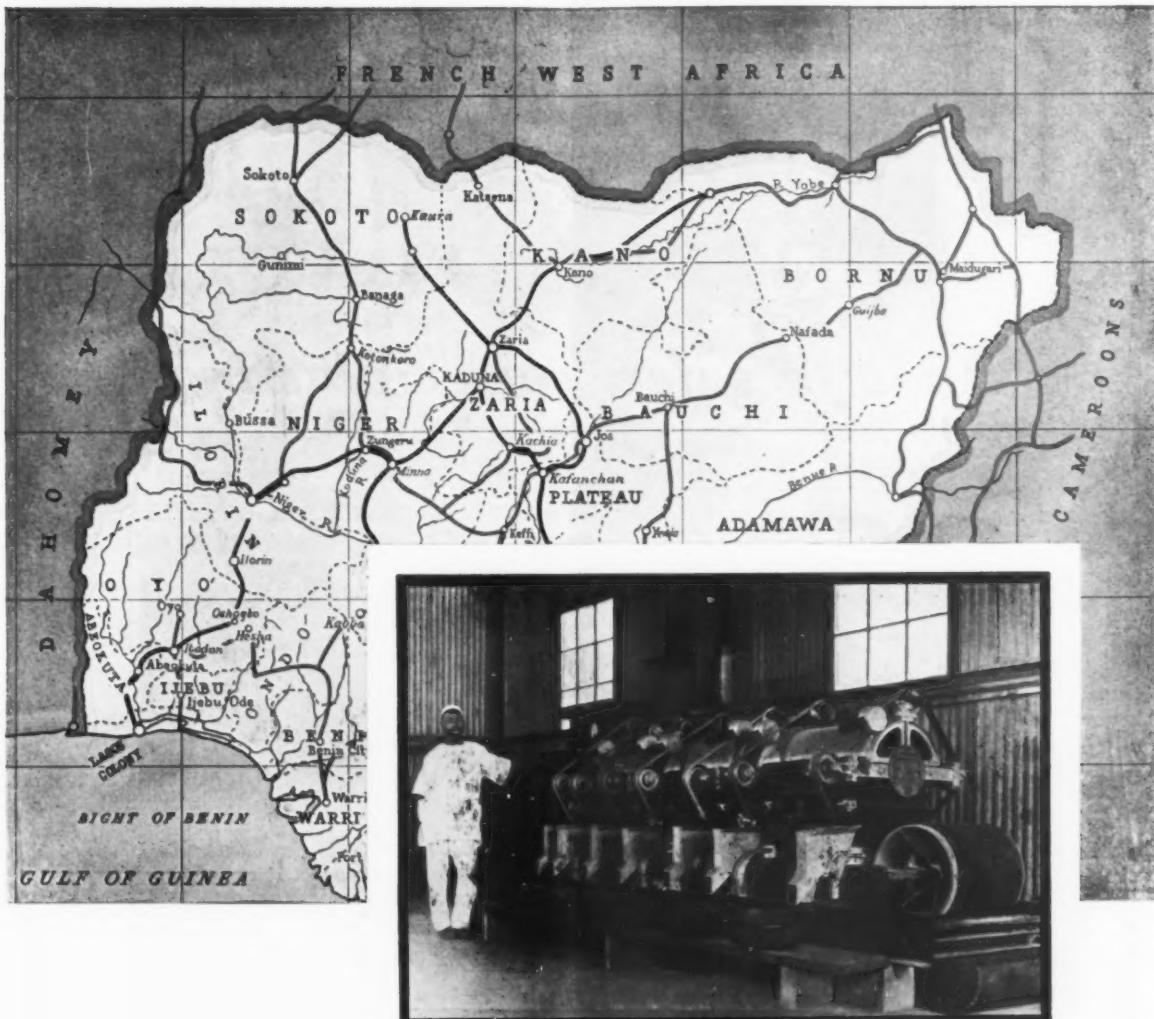
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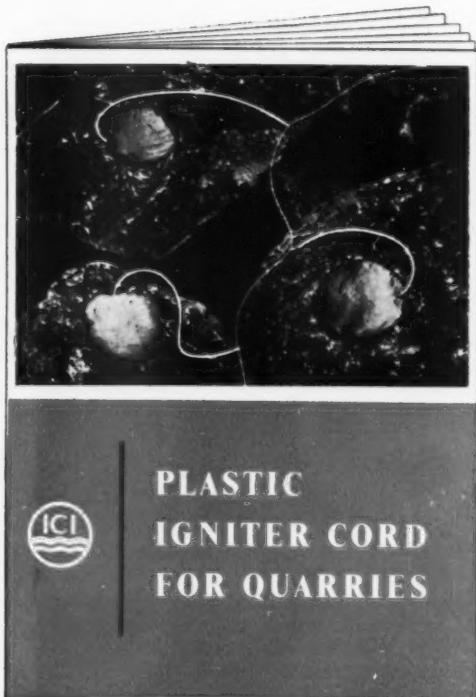
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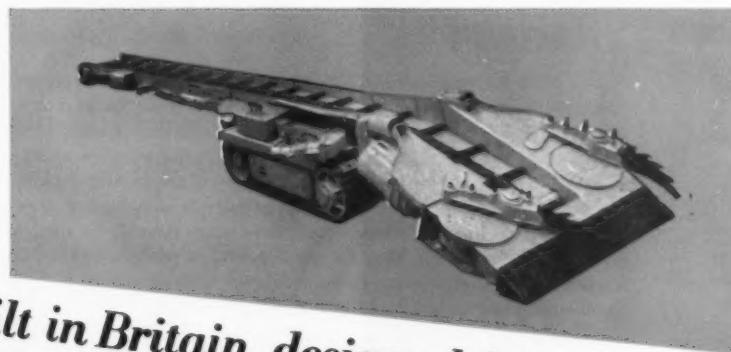
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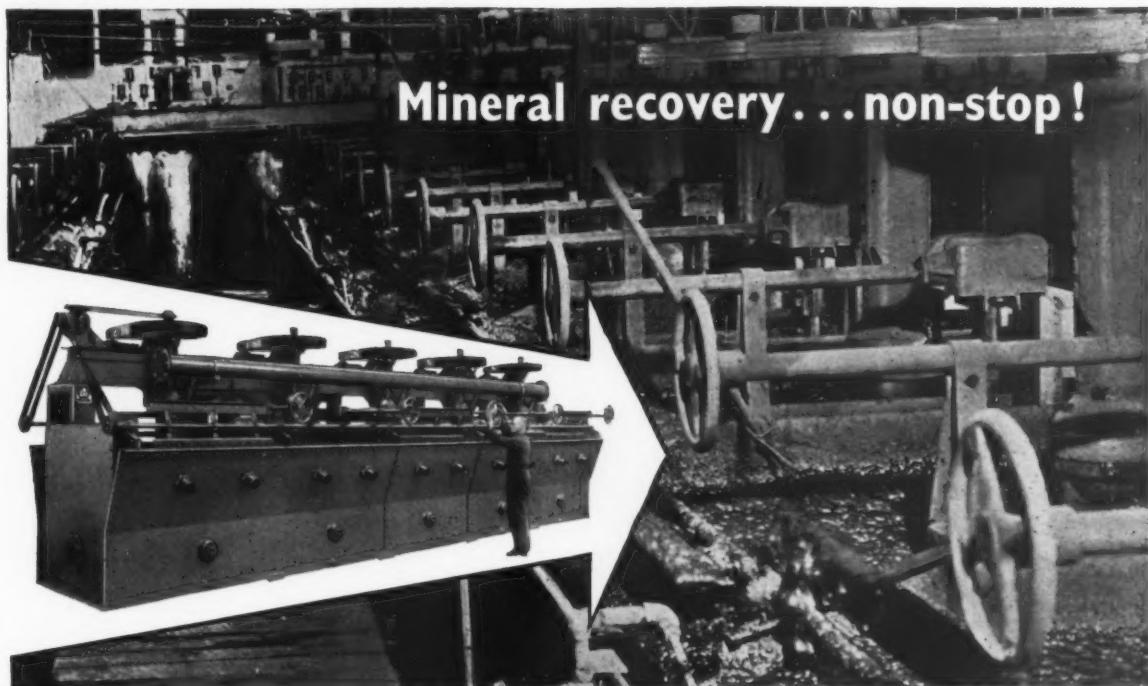
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NOTES AND COMMENTS

Human Problems in the Copperbelt

On a happy and contented labour force depends, largely, the prosperity of any industrial enterprise, declared the Gold Coast Mines Labour Enquiry Committee in the report which it issued in 1953. Though the problems of human relations vary from industry to industry and from country to country, this statement has universal application. As the Duke of Edinburgh stated in his address at the opening of the three-week study conference of which he is chairman, the community is more important than the industry. The criteria should be "the happiness, satisfaction, contentment of the individual as a citizen and not merely as a worker".

World-wide interest in the human aspects of industrialization is reflected by the representative nature of the Conference, whose 280 members have come from countries as diverse in their conditions and requirements as New Zealand and Canada, West Africa and Northern Rhodesia, India, Malaya, and, of course, Britain itself.

Among the papers presented for discussion is a study by J. Clyde Mitchell, Professor of African Studies, University College of Rhodesia, who discusses the emergent pattern of social relationships in the Copperbelt. A striking feature of the Copperbelt African population is that it is composed very largely of young married couples and their young children. Other outstanding characteristics of this population are its high mobility and its diversity or origin. In social surveys on the Copperbelt over 100 different tribes have been encountered. Hence a man or woman in every day casual contacts with his or her neighbours and fellow townsmen is likely to deal not with kinsmen but with strangers. There is, therefore, an active manifestation of tribalism in urban areas. Experience has nevertheless shown that, while tribalism is significant to Africans when they are interacting with each other, it loses its significance when they interact with Europeans. The total social structure in Northern Rhodesia is dominated by the colour cleavage.

Tribalism is not the only factor which determines social relationships of Africans outside their own circle of intimate acquaintances. Position in the civic structure is also important. Certain Africans are employed in positions of influence, such as clerks, supervisors, and to some extent

policemen, by the mines, central government, and local government. A second source of prestige is equally important. The way of the dominant Europeans has become the scale by means of which urban Africans measure prestige. Most Africans in town strive to attain what they consider to be "a civilized way of life". They aim to be meticulous in their dress, furnish their houses with European-type furniture, talk English to each other, and patronize ballroom dancing instead of tribal dances.

It seems likely that in the future "class" will supersede tribal affiliations, but whether "class" differences will ever become strong enough to divide the African community in situations involving Europeans depends on developments in a social field which is much larger than merely the industrial towns.

In a paper entitled "Stabilization of labour in the Rhodesian Copperbelt," Sir Ronald L. Prain, chairman and president of R.S.T., makes the interesting comment that if the stabilized African had, or could evolve, a simple national costume, he would not only gain in dignity and health, but also in his pocket. The same is true of food and other articles of domestic use.

After discussing the pros and cons of urbanization and the social and cultural problems attendant on the mining industry's policy of stabilization, Sir Ronald emphasizes that the European cannot confer a better standard of living on the African, although he is constantly encouraging him to acquire it for himself. Accordingly, the reward paid to the African mineworker should be related to, although constantly in advance of, the standard of living he enjoys at home. Wages in the mining industry should not be outrageously incompatible with what other industries, including farming, are paying.

So far as the colour-bar on more advanced types of job is concerned, this has now been breached. Other forms of differentiation remain, however, and these are bound to cause resentment unless and until it can be seen that they are based not on colour, but on earning capacity founded on ability and on differences in social customs which are found in any community where incomes are different. For instance, if the highest-paid African worker could be seen

to enjoy conditions of housing and pay that approximate to those of European workers, this would, it is hoped, be accepted as evidence that Africans are not kept down on account of their race.

If such ideas were to prevail, perhaps the first step would be to provide very greatly improved housing all round and in particular to the senior categories. A really good house would encourage improvements in general standard of living, which in turn would both satisfy and justify the African's passion to adopt European habits, without being incompatible with the development of national characteristics. The difficulties which such a policy might be expected to cause to other industries, however, would undoubtedly be serious.

Uncle Sam's Stockpile Bill

The U.S. stockpile programme started ten years ago, when Congress decided to build up reserves of minerals, metals and other items that would be needed if war broke out and might be in short supply. Even in those days, however, Congressmen from producing states regarded this measure at least partly as a price supporting operation. Objectives were established for individual items and Uncle Sam set out to buy when and where he could, even in foreign markets.

In the spring of 1954, the stockpile programme took on more of the appearance of a domestic subsidy. On the recommendation of the Minerals Policy Committee, President Eisenhower ordered purchases of about 40 metals and minerals to be stepped up, not as a defence measure but as a prop for U.S. producers. In June of the same year the American Government started buying lead and zinc. Producers of these metals were experiencing difficult times. Demand was down, prices low, and inventories were accumulating. The president rejected the producers' pleas for higher tariffs to protect them from imports and ordered purchases of lead and zinc to be still further increased.

According to *The Wall Street Journal*, the original stockpile contains or has on order an estimated \$5,500,000,000 of strategic items out of a total goal of \$6,900,000,000. Under the more frankly price support proposals put forward in 1954, Uncle Sam has actually bought \$1,100,000,000 of minerals and metals and has another \$200,000,000 on order. The total goal for this hoard—known as the "long-term stockpile"—is \$4,300,000,000.

Our contemporary points out that, by the latest accounting, U.S. taxpayers have tied up in the strategic cache a cold \$7,500,000,000. The hoard contains an assortment of some 70 war-essential items, mostly minerals and metals, but also including such items as natural rubber, hog bristles and castor oil. This \$7,500,000,000 inventory lags only slightly behind the \$8,500,000,000 wrapped up in agricultural produce.

The new law which Congress is now passing, with Administration backing, would put O.D.M. in "the out-and-out price support business." The scheme calls for continued buying of tungsten, fluorspar, asbestos and columbium-tantalum, although stockpile goals for these items have already been met. Officials are reported to be in agreement that, as other stockpile goals are met, new demands will arise in Congress for still more schemes to prop up the mining and mineral industries.

Senator Bennett, a Republican from the mining state of Utah, sees many similarities between the problem of these minerals and the farm problem, with the added complexity that the domestic surplus of production exists in the face of very large importations of metal and of the inability of producers to bring down costs to the point where they can move into the world market as exporters. If Mr. Flemming

went shopping for \$7,500,000,000 of lead, said Senator Bennett, he could bring home the amount U.S. mines could produce in seventy years at last year's rate.

The basic purpose of the stockpile—to assure the U.S. a sufficient domestic reserve of essential items in case of war—is generally accepted as entirely sound. As a means of price support, however, stockpiling is clearly a cumbersome, costly and inefficient tool. Like a shot of cocaine in the arm of an addict, its effect on the market may be temporarily stimulating, but it soon wears off, leaving the victim with an even worse hangover, which can only be cured by progressively larger doses until eventually the whole system collapses.

It would appear from the latest reports that the American nation is becoming increasingly perturbed about the cost of the "long-term stockpile" and its implications.

The I.T.A. Comes into Operation

The International Tin Council has got underway as a result of its first series of meetings last week. A number of appointments were officially made. Mr. Makatita of Indonesia and Mr. Eeider of Denmark were elected vice-presidents, and Mr. Davey buffer stock manager and Mr. Lochtenberg his deputy were appointed, while Mr. Fox was appointed secretary of the Council, in addition to his secretaryship of the International Tin Study Group which for the moment is to continue in being.

M. Peter, the French chairman of the Council, stated that France had withdrawn her request for a reduction in the ceiling price of tin. This is a welcome move. There is no reason for regarding the present *tranches* as sacrosanct but, as they have been drawn after careful study and bargaining, they should be given a run. Israel and Korea have now acceded to the agreement and it is thought probable that Turkey will follow soon. Again all this is welcome but one would have liked some more positive sign of the intentions of West Germany. West Germany has recently suggested that she might consider joining and one of the reasons offered for her greater willingness was the fact that France was seeking a reduction in the ceiling. It remains to be seen whether, now that France has withdrawn her request, West Germany will now become reluctant again.

Another of the routine tasks of the Council was to re-allocate the votes in view of the fact that not all of the countries offered votes are members of the I.T.A. Under the new allocation, Malaya has 385, Indonesia and Bolivia 229 apiece, Congo 91 and Nigeria 61; the United Kingdom has 416, France 180, Denmark 86, India 82, Canada 83, Holland 57, Belgium 41, Australia 35, Spain 15 and Ecuador 5.

Finally, the Council dwelt on the supply demand situation and the buffer stock. The Council thought that the supply demand would be in approximate balance in the remainder of 1956. It must surely be one of the few informed organizations that think so; almost everybody thinks that a genuine shortage will appear as the Texas smelter is now absorbing more than the apparent world surplus. Of course, if trouble develops in Malaya that probability is likely to become a certainty. However, the council cannot speculate on the labour problems of Malaya—at least not in public—and even more important an organization that is in the buffer stock business cannot make forecasts about the future in any detail without betraying its own intentions to some extent. Precisely how the buffer stock will be started remains as big a mystery as ever. It appears that countries are taking advantage of the wording of the agreement to pay their contributions in cash, at least to start with. Initial contributions are to be in the hands of the buffer stock by September 15. Thus it

seems unlikely that the buffer stock will have much metal when the Texas smelter closes (if it does) on January 31 next year. The price will not be likely to go below £720 for long so that the manager will not be able to buy. But he should have plenty of cash to buy if the closure of the Texas smelter causes the price to plummet.

One of the difficulties that the I.T.A. faces is to know how much information it should give the public about its activities. Since it will need public support and sympathy and since there will be many to claim that it is nothing more than a dressed up cartel, there is a strong case for taking the public into its confidence as far as it is able without hamstringing itself. It is easy to see that the I.T.A. will want to feel its way and not want to rush hastily into decisions on this matter. At the same time there is a good deal to be said for giving information about the buffer stock in these early stages precisely because the manager will not be functioning in the ordinary way. If he is out of the market because he has no metal to sell and the price is too high for him to buy, there seems little harm in releasing information about contributions since in a sense they will be insulated from the market.

How the I.T.A. will handle its "public relations" is perhaps its most delicate task; but its most important task is to win the confidence of the trade in its methods, and confidence cannot be built without some information.

The British Coal Industry Through Russian Eyes

During its tour of the British coalfields, the delegation of Russian mining engineers made eighteen visits underground, besides inspecting a large number of surface plants. At a press conference sponsored by the National Coal Board, Mr. Fedor Antonovich Barabanov, head of the delegation, expressed his appreciation of the way in which the tour had been organized and of the reception given to the party at all divisions and collieries. Mr. Sergej Borisovich Ostrovskij (Deputy Minister, Coal Production, Ukraine), and Mr. Suren Khorenovich Klorikyan (an official of the Ministry of Coal Industry), were also present.

The Russian experts were very favourably impressed with the direction taken in the reconstruction of old collieries, which was being tackled on thoroughly sound lines, and said that a number of extremely interesting solutions to problems of mine engineering had been found. In particular, the problem of surface mechanization had been very satisfactorily solved. Mr. Barabanov also referred to experiments with new types of machines at British mines, which could be expected to result in far-reaching plans for mechanization at the face.

As examples of developments applicable to Russian conditions, the delegation cited mechanization and a certain amount of automation at the surface, some types of metal supports, and also certain conveyors—particularly cable and chain conveyors. Two members of the party investigated shaft sinking practice and were interested in the freezing method and also in the simultaneous supporting of the shaft. Mr. Barabanov stated that in the Soviet Union a shaft of 7-8 m. in diameter was sunk 202 m., finished and lined, within a month.

Negotiations for the purchase of British equipment have been in progress since the visit of Mr. Khrushchev and Marshall Bulganin. Among the machines ordered by the Soviet Union are a number of power loaders and scraper conveyors. Further negotiations are now proceeding for the purchase of belt conveyors and certain types of supports.

Brazilian Mineral Activities in 1955

(From Our Own Correspondent)

Teresopolis, June 28.

A Bill has been drafted to create a Ministry of Mines and Energy, with jurisdiction over mineral research and exploitation, hitherto controlled by the Ministry of Agriculture. The need for the measure is stressed in the 1955 reports, just published, by the departments concerned.

In 1955, 69 new mining companies were registered, as against 54 in 1954, and licences were approved to export 2,416,194 tons of minerals, valued at U.S. \$696,436,095. Iron and manganese ores represented 91.26 per cent and 8.36 per cent of the volume and 61.42 per cent and 16.06 per cent of the value. The next most valuable exports were scheelite, rock crystals, mica, beryllium, columbite-tantalite, wolframite, zirconium, lithium, bauxite, cerium sulphate, unworked semi-precious stones and magnesite.

In East and North-east Brazil and Central Minas Gerais, specialized aviation companies, under contract to the government, continued surveying and photographing extensive areas, rich in minerals. DNPM activities in the North-east included investigation of known deposits of thorium, lithium, tantalite and beryllium and technical assistance to mining companies in the measurement and exploitation of their concessions.

Prospecting in Minas Gerais revealed the presence of gold, tantalite, cassiterite, ilmenite, monazite and zirconite along Rio das Mortes. Exploration pits and galleries were opened in the deposits of radioactive minerals on the Pocos de Caldas Plateau. Preliminary studies disclosed an important reserve of 36,500 tons of ThO₂ in Morro de Ferro, of which the commercial value is being determined by laboratory tests. An area of 6,500 sq. metres was marked off in Morro do Taquari, where radioactivity was most pronounced and extend through 200 metres of rock, the maximum reached by the drills. An average reserve of 250 grams of uranium per ton was estimated in 3,200,000 tons of material, with secondary formations of pyrite and recoverable fluorite in large deep-violet crystals. The prospects for obtaining uranium concentrates from the rock are being verified.

The results of drilling in the Ponte Alta and Serrote mines were disappointing as no mineralized rock was found below the decomposed superficial layer of uraniferous zirconium, 6-40 metres, thick. The Serrote mine furnishes more zirconium ore than any other Pocos de Caldas deposit and has a high percentage of both zirconium and uranium. The uranium oxide content ranges from 0.5 per cent to one per cent.

Brazilian and U.S.A. Geological Survey staffs, who have been mapping out and measuring iron ore reserves, covering 5,000 sq. km. in Central Minas Gerais, since 1949, aim to complete the work in 1959. The principal objects are to plan adequate transport systems, raising export capacity to 10,000,000-20,000,000 tons of iron ore annually, and develop sources of non-ferrous metals for internal use.

Priority has been given to investigation of the recently-discovered deposits of lead, zinc and copper minerals in the Poco Verde and Barrocao ranges, where the reserves appear greatly to exceed those of the Municipality of Januaria.

The reserves of copper ores in Rio Grande do Sul were estimated at 1,000,000 tons, with 0.5%-3% copper. The Camaqua mine produces 2,000 tons of mineral monthly, those of Cerro dos Martins, Primavera and Seival are idle and the Andradas deposit awaits examination.

Potentials of Australia as a Market for Mining Machinery

Although a wide range of mining machinery and equipment is locally made, Australia is dependent on importation for the greater part of her requirements. This review of the Australian market is based on a report prepared by the U.K. Trade Commissioner Service in Sydney, in which the opportunities for British exporters are analysed.

Much of the machinery used by the metalliferous mining industry in Australia is locally produced, but there is scope for imports of certain types, particularly in Queensland. On the other hand, the Australian coal mining industry obtains the bulk of its requirements from overseas. The main suppliers are the U.K. and the U.S.; however, there is competition from continental countries and from Sweden and Germany in particular. Mining machinery and equipment used for oil exploration comes mainly from the U.S., but owing to currency problems, the companies conducting oil exploration buy what they can from the U.K. and Europe.

Mining machinery imported by Australia customarily includes coalcutters, coal loaders, the larger types of haulage winches and winding engines, instruments for the control of ventilating systems, ventilating fans of the larger sizes, auxiliary flameproof fans, miners' electric cap lamps, and deputies' flame safety lamps. There are also importations of equipment of which certain types only are made locally, such as percussive compressed air drilling equipment, and of specialized equipment, such as the larger types of high-speed reciprocating air compressors and submersible pumps.

THE AUSTRALIAN MINING INDUSTRY

The coal industry is the most important branch of Australian mining, production amounting in 1955 to 19,273,000 tons of black coal and 10,112,000 tons of brown coal. New South Wales is the principal coal producing State and is by far the largest market for coal mining plant.

Figures given by the U.K. Trade Commissioner Service indicate that hand-loading is still a common practice in New South Wales, but is tending to decrease. Machine loading is also increasing in the Queensland mines, as is indicated by the following extract from the 1954 report of the Queensland Coal Board :

"There are many indications that colliery proprietors within their financial capacity are now making efforts to introduce into their mines modern mechanical methods so as to improve their production rates and efficiency. . . . Chief among these are :

- (a) The equipping of practically all mines throughout the State with power borers and/or pneumatic picks;
- (b) the increasing use of diesel locomotives for haulage work below ground;
- (c) the installation at an increasing number of mines of scraper loaders and scraper chain conveyors;
- (d) proposals of owners to supersede scraper chain conveyors by rubber belt conveyors;
- (e) the foresight demonstrated by owners of new mines being laid down in driving the main tunnels by mechanized methods and designing their mines for efficient exploitation by such methods;
- (f) the interest being shown by a number of colliery proprietors in the installation of mechanical coalcutters."

The Yallourn coalfields in Victoria yielded 8,762,175 tons of brown coal in 1954/55 compared with 7,980,844 tons in 1953/54. The whole of this output was obtained

from open cuts. The extraction and briquetting of this coal is entirely mechanized and highly specialized machinery is employed. Similar methods of extraction and briquetting are to be used at a new open cut which is being developed at Morwell, Victoria.

In 1955 the production of metals and minerals other than coal included gold, 1,049,000 oz.; silver, 14,060,000 oz.; lead, 293,000 tons; zinc, 257,000 tons; copper, 44,000 tons; tin (refined), 2,100 tons; tungsten ores, 2,200 tons; iron ore, 3,719,000 tons; rutile, 60,000 tons; and zircon, 48,000 tons.

LOCAL PRODUCTION

So far as metalliferous mining is concerned, Australian manufacturers are in a position to build a wide range of machinery, with the notable exception of rock drills, for raising and treating all types of ore found in the Commonwealth. The local manufacture of coal mining machinery, however, has not been developed to the same extent.

Mining machinery is manufactured in all the Australian States, but the bulk of production is concentrated in New South Wales and Victoria. The types which are produced to a greater or lesser degree in Australia include surface and underground conveyors; pit tubes and mine cars; underground haulage systems; ventilating equipment; fans; diesel and diesel electric locomotives; tub propelling plant; skips and cages; headgears; winding engines; coal preparation plant and miners' lamps (acetylene type). There is a substantial local production of agitators, conditioners, feeders, flotation cells, classifiers, concentrating tables and jigs, dewaterers and thickeners, crushers, grinding mills, screens and filters. Pumping machinery and certain types of air compressors, electric motors and electric control equipment are also made in Australia. There may, of course, be importations of mining machinery of a type normally made in Australia, when the equipment required is of a special kind; e.g., high-frequency vibrating screens.

The total value of machinery manufactured in Australia for the mining and associated industries amounted in the period July, 1953 - June, 1954, to £A2,265,545 ex-works. This is equivalent in value to rather more than half the total imports of mining machinery which in the twelve months July, 1954 - June, 1955, amounted to £A4,353,911 (f.o.b.), Britain's share being worth £A1,127,183 against U.S. exports totalling £A2,965,790. It should be noted, however, that the high U.S. total is accounted for largely by rock boring machinery having an f.o.b. value of £A2,327,656, much of which was imported for oil exploration, mainly by American companies.

COMPETITIVE POSITION OF U.K. GOODS

Coalcutters made in the U.K. enjoy a price advantage, but there is nevertheless a preference by many Australian collieries for machines made in the U.S. on the grounds of greater flexibility, which is said to arise from their hydraulic operation. As an indication of relative selling prices, U.K. coalcutters were said to sell at £A7,000/10,000, and American machines at £A17,000/25,000. It should be

appreciated that, due to the physical conditions of the coal seams, which resemble those of the U.S., mining techniques in Australia tend to be in accord with American methods. Hence coal mining equipment of U.S. origin has operational advantages.

The U.K. also holds a price advantage in respect of coal loading machines, the U.K. machine selling at about £A9,000/10,000 compared with £A15,000/17,000 for the American machine. This advantage is offset by the higher output and greater flexibility of coal loaders made in the U.S. The need in Australia at the present time is to produce coal more cheaply. One of the major costs in coal production is that of labour, which arises from limitations in the time miners are allowed to work at the coal face in each period of 24 hours; hence the rate of output by coal loaders is an important factor.

OTHER EQUIPMENTS

Several American manufacturers are now producing continuous mining machinery. Increasing use is being made of continuous miners and this will necessarily react adversely on sales of cutters and loaders. According to the trade, 21 continuous miners, each costing about £A50,000, are now either installed or on order for use on coal seams of 7 ft. or more in thickness. So far as is known, machines of this kind cannot be obtained from the U.K. In the opinion of the trade, the future tendency will be for the use of more continuous miners, despite the high initial cost.

As regards conveyors, there is said to be little difference between the local and imported product, but the selling price of the former is approximately 75 per cent of that of the U.K. product.

The market for coalcutters, coal loaders and conveyor equipment is extremely competitive and much importance is attached to "on the spot" representation. In response to enquiries in the trade, it was stated to be of the utmost importance that there should be sales staff with an intimate knowledge of the Australian coal mining industry, and that they should make regular visits to collieries. It is customary for maintenance and service staff to be employed full time on this work and they are not normally expected to participate in direct selling.

The Australian market for pit tubs, mine cars, tub-propelling plant, skips and headgears, ore treatment equipment and pumping machinery is fundamentally a local one. On the other hand, the larger types of underground haulages and winding engines are imported from the U.S., since it is not economic for local manufacturers to make the small number of the larger units required, and this position is likely to continue. Coal preparation plant is now made locally, only special items of equipment such as blowers, washboxes, etc., being imported.

Electric rotary drilling equipment is made by two local manufacturers and is similar to that made in the U.S., but the U.K. products are superior in quality. In general, electric drilling equipment from the U.K. is comparable in price to the equipment made in Australia. Drill control panels of U.K. origin are higher in price, but the locally made product does not have to comply with such stringent standards as those laid down in the U.K. U.S. firms have a larger share of the trade in diamond drills.

PERCUSSIVE COMPRESSED AIR DRILLS

The focal production of percussive compressed air drilling equipment has been discontinued and supplies are obtained principally from the U.S., Sweden and the U.K. In the past, equipment from the U.S. was considered to be more efficient than that from the U.K. Although there

have been marked improvements in equipment from the latter source, much goodwill is still enjoyed by the American product. The standardization of U.S. equipment is also a material factor. The Swedish product is reported to have an advantage in that it is readily adaptable to the use of tungsten carbide tipped drill steels.

Despite local production, the market for submersible pumps is still largely held by U.K. suppliers.

Rotary air compressors are largely obtained from the U.K., but Germany appears to be the major supplier, due to the relative cheapness of the German product.

There is a substantial local market for certain types of reciprocating air compressors, but the U.K. appears to be holding the market for the high-speed type of machine. The larger type of air compressor (over 1,500 c.f.m.) is also made in Australia, but there are some importations from the U.K. and the U.S.

There is some competition from the U.S. in the market for electric cap lamps, but Australian requirements for deputies' flame safety lamps are apparently being met solely by U.K. suppliers.

In their report on the Australian market for mining machinery, the U.K. Commission Service stresses the importance of adhering to agreed delivery services, providing for the ready availability of spare parts, and making any necessary arrangements for after-sales service. It is also considered desirable that U.K. manufacturers should make a personal visit to Australia in order to study at first hand the market requirements and tendencies.

TARIFFS AND REGULATIONS

The Australian Customs Tariff provides for the entry of goods in certain circumstances under what are called "Departmental By-Laws". These goods generally qualify for duty free admission in the case of those of U.K. origin, while those of foreign origin enter at concessional rates. In general, by-law entry is granted to cover goods "of a class or kind not commercially produced in Australia".

The British Preferential Tariff on mining machinery and equipment ranges from nil up to a maximum of 27½ per cent, the Most Favoured Nation Tariff from 10 to 55 per cent, and the General Tariff from 10 to 57½ per cent. Apparatus and components for use in the mining industry in carrying out mining operations and in the treatment of products of those operations are exempt from prime rate duties, except that (in some instances) exemption is dependent on fulfilling certain specified requirements as to end use.

Almost all mining machinery is subject to administrative licensing control and not to quota restrictions. All import licensing is at present on a quarterly basis and all licences are normally valid for twelve months from the date of issue.

With the exception of Western Australia, electric equipment for use underground must be approved by the State Mining Authority concerned. If it has been tested and granted a certificate by the Buxton Testing Station or the American Bureau of Mines, approval is generally (but not automatically) granted.

Machinery, implements and apparatus for use in the mining industry for carrying out mining operations are exempt from sales tax.

Selling prices and mark-ups are by and large determined by market conditions. Low margins tend to apply where large contracts are involved and high margins where transactions are small or where long-term after sales service is necessary. The degree of marketing is also an important factor in determining mark-ups.

Automation Comes to the Prospector

Hunting Geophysics new search installation, a D.C. 3 aircraft, specially modified to carry magnetometer, electromagnetic detector and scintillation counter—and able to operate all three instruments at once, has brought automation to the prospector.

On view to members of the technical press at Radlett aerodrome on June 27 the aircraft in operation (for an electromagnetic survey for the detection of sulphide ore deposits, notably those of copper, nickel, zinc, lead and graphites) works on the basic technique of creating an alternating electromagnetic field—transmitted from the primary aerials slung on spreaders above and alongside the fuselage—in the regions to be explored, and measuring the range of conductivity as between the primary field emitted from the aircraft and the field re-radiated by the conducting body in the earth.

VALUE OF TWO-FREQUENCY PRINCIPLE

In actual practice, however, maximum value is obtained from the data if two electromagnetic fields—one of low frequency and one of high frequency—are used simultaneously. This is due to the fact that the response of various conducting bodies varies with the frequency of the energizing field so that by using the two frequencies the geologist is better able to draw useful conclusions as to the relative conductivity of the deposit. Generally speaking, poor conductors give a reduced phase shift on the record produced by the low frequency field. The high frequency field does not penetrate as deeply into the earth as the low frequency field and thus shows up surface conductors such as lakes, swamps and other strong anomalies. While the low frequency plot will also give indications of these anomalies it will show up to much greater advantage the stronger anomalies present over deeper and potentially more valuable areas of conductivity.

The two most suitable frequencies for this work are 400 cycles and 2,300 cycles per sec. The re-radiation are picked up by the bomb-shaped "bird" (clearly visible in the diagrammatical sketch) which is towed on to the end of the 500 ft. of cable. During each flight the phase shift for each fre-



Specially modified DC3 aircraft to carry and operate simultaneously electromagnetic detector, magnetometer and scintillation counter

quency is measured by a phase shift meter and recorded as two separate profiles and from these records maps are produced contoured to degrees of phase shift for low and high frequencies respectively.

The basis of interpretation of the data is the simple ratio between the high and low frequency phase shift figures. This ratio can then be contoured to give a clear indication of the relative conductivity of the bodies located. The records derived from the electromagnetic detector enable the anomalies to be picked out for detailed study. For example, if no strong conducting body is present the low and high frequency records from the E.M.D. will appear to be very similar in form, illustrating thereby little phase shift and little deviation from the datum. On the other hand, the presence of a good conductor is indicated by a sharp peak in the low frequency profile, which is less marked on the high frequency profile. The task of the interpreter is to distinguish between anomalies indicating orebodies and those produced by influences of no immediate concern. The latter can be caused by objects such as steel frame buildings, power lines and railways.

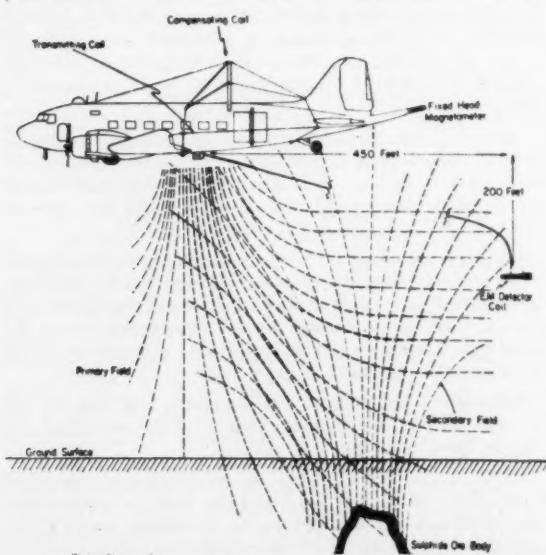
COMBINED AIRBORNE GEOPHYSICAL SURVEYS

Looking at the diagrammatical sketch again it will be noticed that a metal boom (which is 12 ft. long) projects from the tail of the D.C. 3. This contains at the tip of the boom the detector head of the magnetometer whose non-stop measurements enable geologists to plot likely deposits of iron, oil and titanium. The electromagnetic results will, therefore, be more informative when studied in conjunction with airborne magnetometer data in a combined airborne geophysical survey. In fact, both types of survey can be carried out simultaneously with resulting economy in cost.

Finally, it will be noticed that in the belly of the fuselage is the scintillation counter whose sensitive needle reacts whenever flown over radioactive ores and it can detect 35 millionth of an oz. of radium at a height of 200 ft. with the aircraft travelling at 150 m.p.h.

CHECK, CONFIRMATION AND DISCOVERY

Thus the advantages of Hunting's Geophysics new search installation is apparent as not only can the three types of data be measured along the same flight line, but they can be compared with each other, and so give more than three times as much vital information to the geologists about the nature of the ground over which the aircraft is flown. The magnetometer, for example, may conclusively confirm the electromagnetic detector's data over some doubtful ore deposit and the scintillation counter may yield information which, had it not been made available at the same time as the data derived from the magnetometer and electromagnetic detector, might never have been discovered.



Principle of E.M. Prospecting

Mine Air Conditioning System in Canada

A unique air conditioning system that raises the temperature of cold air in the winter by making ice and utilizes the ice thus formed to reduce the air temperature during summer has been put into service at the Stobie section of the International Nickel Company's Frood-Stobie mine in the Sudbury district of Ontario. The system is described in the following article.

Instead of applying heat when the thermometer falls below zero during the Northern Ontario winters, ice production is increased at the Frood-Stobie mine in order to take the chill off the fresh air supplied from the surface to the mine workings. The basis of this unusual system is a convenient natural law whereby heat is released when ice is formed.

POWERFUL DELIVERY FAN

The fan that delivers the air to underground has a diameter of 198 in. and is one of the largest in the world. This powerful fan, which has a top capacity of 750,000 cu. ft. per min., blows fresh air from the surface through a 300ft. vertical airway 20 ft. in dia. into two huge open stopes mined by the blasthole method for this purpose between the 300 and 500-ft. elevations. Each stope is 80 ft. wide, 200 ft. long and 200 ft. high, and the stopes are separated by a pillar 70 ft. wide. The air circulates through the two stopes in succession on its way to the main intake.

USE OF PUMPING SYSTEM

Water from the mine's main pumping system is furnished at 120 lb. pressure to the four spray points at the top of each stope. The volume of water required in winter months varies up to 200 g.p.m. The fine particles of water sprayed into the air passing through the stopes turn to ice, and the



The 198 in. dia. vertical propeller-type fan delivers air to the Stobie section

heat given up in the process is transferred to the air. Some 40,000 tons of ice were formed at the bottom of the stopes during the past winter. This heat, along with that absorbed by the air from the large area of wall rock exposed in the stopes, added up to 15,000,000,000 B.T.U., or the equivalent of burning 100,000 gallons of oil or 850 tons of coal.

SMALL TEMPERATURE VARIABLE

Although the surface temperature during the winter ranged to 25 deg. below zero, the fresh air delivered from the main intake of the mine ventilation system 600 ft. below the surface varied only between 27 and 30 deg. above zero as a result of its side trip through the ice stopes. The temperature eventually is expected to be held at about 32 deg. above zero as the system is improved.

When the volume of air handled through the system ultimately reaches full capacity of 750,000 cu. ft. per min., as compared to 150,000 to 300,000 c.f.m. during the past winter, upwards of 140,000 tons of ice will be formed in the stopes during each winter.

In the summer the ice will be melted as the warm fresh air passes through the stopes, and the air will be cooled between 5 and 10 deg. The humidity of the air will also be reduced as it cools below the dew point and much of its moisture drops in the stopes.

SIMILAR TECHNIQUE AT CREIGHTON

It is reported that this phase of the Stobie air conditioning system is similar to that at Inco's Creighton mine, where fresh air being delivered to the mine is cooled by passing it through the natural refrigeration system in the old workings where seepage water freezes during the winter.

At other Inco mines where heating of fresh air is required during the winter, steam or oil installations are used. When the Stobie operation was being planned and it was noted that the logical position for the main fresh air intake lay near a low-grade section of the orebody conveniently located between the two main mining areas, the feasibility of establishing ice stopes presented itself. As a result, Stobie has been equipped with a remarkably efficient air conditioning system at a fraction of the cost of a surface heating plant.

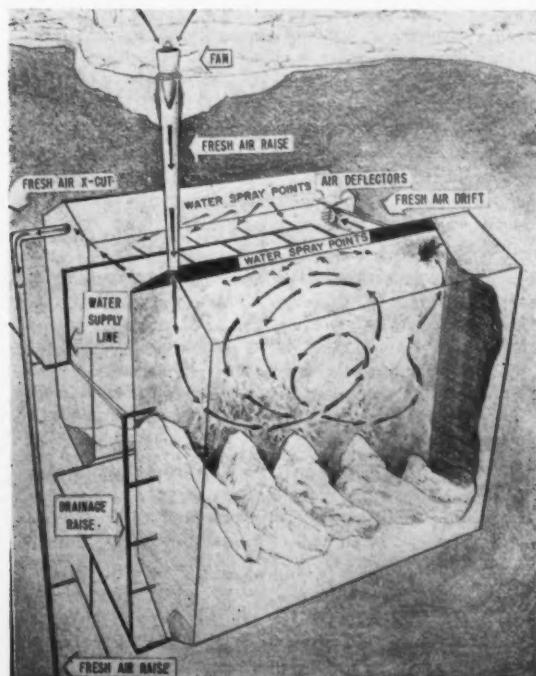


Diagram showing method of operation of the new air conditioning system

Recent Developments in the U.K. Coal Mining Industry

In the N.E. Division a flexible chute for use in skip-winding installations has been produced. There is a risk of damage to the skip or chute if a rigid metal overchute is used at the pit bottom and is not properly withdrawn before winding begins. The revised design eliminates this. As the chute is flexible, it collapses without damage if struck by the side of the skip before being withdrawn.

The chute is constructed almost entirely of six-ply rubber belting, $\frac{1}{2}$ in. thick. Angle iron brackets are used to join the rubber sections of the chute, and if fouled by the skip the structure is sufficiently resilient to allow the chute to regain its normal shape when the skip has passed through.

AN ASPECT OF HAULAGE

A detector for diesel loco railway signalling systems has been installed with success at Thorne Colliery after a satisfactory test run at Yorkshire Main.

Previous detectors have had the drawback that they were capable of being actuated accidentally, by persons or rolling stock, by a knock, by metal fatigue, or by mine dust and water. Dangerous conditions of the signals could be set up as a result of such accidents.

The new design eliminates this danger by placing the detector in an all-welded box beneath the rail. The box is loosely clamped to the rail by four removable hooks, and inside it are mounted up to four micro-switches, depending on the number of circuits required. The box has an adjustment plate by which the actuators are set to just touch the bottom of the rail. The detectors are operated by the deflection of the rail—a standard 50 lb. per yd. diesel rail, set on sleepers the standard distance apart—when a diesel loco or mine car passes over it.

OTHER NEW EQUIPMENTS

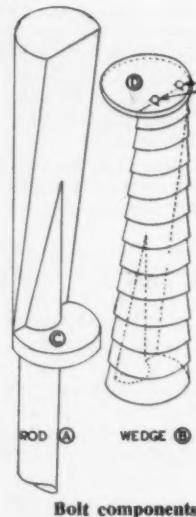
A light portable tool which acts as a roller guide in setting roof link bars used in support of the coal face has been invented at Dudley Colliery, Northumberland.

The tool is slotted on to the flange of a roof bar already in position and locked by a cam; the bar to be attached is then threaded through the open arms of the tool, the locating or hinged pin affixed by inserting the wedge and the new bar is in position. The cam is then released and the tool removed for the next fitting.

A hinge for a corrugated or W type bar such as is used with the Gloster Getter power loading machine, or over-cutting coal cutters has been designed in the East Midlands Division. The device is intended to replace the swivel bar normally used in these circumstances. A bar of this design can be put flat to the roof, while this is not possible with the swivel bar which has a break in its top surface to allow the swivel to rotate. When the hinged bar is locked in its forward position it is as strong as a solid bar of the same length.

MANUAL LOCKING OF ROOF BOLT

The roof bolt illustrated has been evolved in the East Midlands Division, N.C.B. The bolt has two main components, the rod A and the wedge B. The rod is of $\frac{1}{2}$ in. diameter mild steel and may be any length but normally varies between 5 and 6 ft. in length. Its top end is tapered for about 6 in. to receive the wedge B in such a way that



Bolt components

rod and wedge form a cylinder, ledge C serving as a rest for the wedge. A semi-cylindrical projection running up the flat side of the tapered portion of the rod from the ledge is designed to fit into a semi-cylindrical recess in the wedge. The wedge is either of steel or malleable iron, and its outer periphery is ridged or serrated to provide a better gripping contact with the side of the drill hole. A thin rubber or plastic retaining disc D, secured to the top of the wedge by two studs E, holds the wedge in the drill hole until the operation of installing the bolt is complete. The lower end of the rod is threaded to receive a bearing place (not shown) and retaining nut.

In operation the rod and wedge are placed together so as to form a cylinder and pushed up into the hole drilled in the roof strata. The bearing plate is then pushed up the threaded portion of the rod until it makes contact with the roof. The nut is then screwed up to the plate; continual screwing draws the rod down, forcing the wedge outwards into the side of the hole until a firm anchorage has been obtained. The design is such that once the bolt has been pushed up the hole a smart downward pull will anchor it securely. While the rod moves the wedge is held by the retaining disc, D, of larger diameter than the drill hole.

ATMOSPHERE CHECK FOR BLASTING

At many collieries in South Wales, it is the practice to stop all shotfiring when the barometer falls to a certain level. To give warning in these cases there has been devised a system in which an alarm bell rings when the atmospheric pressure reaches a pre-determined level. The system is installed at Groesfaen Colliery.

The alarm mechanism is actuated by movement of the needle of an aneroid barometer. This operates a two-stage switch, which first of all causes a red alarm bulb to light when pressure approaches that level and then sounds the alarm bell when the level is reached. At Groesfaen, shotfiring ceases at 28 in. pressure. The device is designed to give the alarm at that pressure; the red alarm bulb lights when pressure falls to 28.4 in.

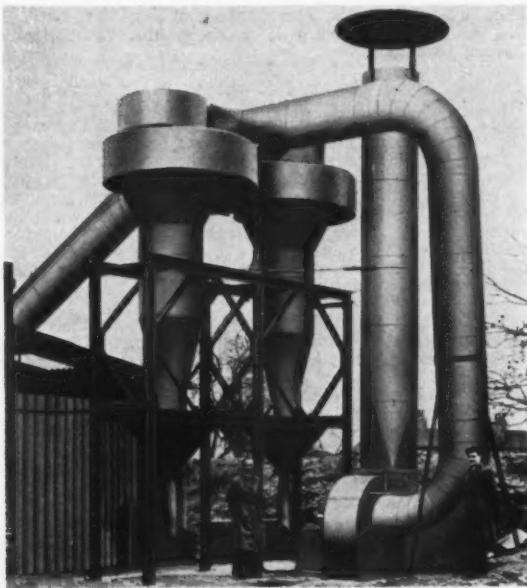
The barometer is situated in the lamp room, where there is 24 hour attendance. Officials in charge at pit bottom are informed when the red light shows, and all deputies are warned. When the alarm bell rings, all shotfiring is stopped.

Filling batteries with a bulb-operated pipette is slow. A new system replaces the bulb with pressure and suction pipes. These pipes are connected to a fan which can be used to produce suction, or air under pressure, according to need. A valve determines whether suction or pressure is applied to the pipette at any instant. A reservoir is included in the suction circuit to trap any electrolyte.

MACHINERY AND EQUIPMENT

A High Efficiency Dust Collector

Cycol is the registered trade mark of a new type high efficiency dust collector being manufactured by P. M. Walker and Co. (Halifax) Ltd. The simple cyclone is probably the most common type of collector in use to-day, but is equally the most inefficient.



The Cycol high efficiency dust collector

By careful design and selection the Cycol has operating efficiency of 100 per cent on any particles larger than 30 microns or 80 per cent on 12 micron size (1 micron = 1/25,400th part of one inch). It is very versatile and can be used on many installations and particularly where heavy loadings of the finer dusts occur. It is self cleaning and requires no maintenance.

Another advantage of the Cycol is that the fan can generally be mounted on the cleaned air side, thus obviating wear on the fan blade and fan scroll. Any quantity of air can be handled with any number of units in parallel. The Cycol has a further application in that installation is possible as a pre-cleaner to clean air before passing to a cloth filter, thus obviating wear on the filter and reducing the amount of cleaning necessary.

A Range of Signalling Systems

The emergency stop and signalling system manufactured by Hugh Wood and Co. Ltd. incorporates the features already included in the S.B. panel, the main difference being that instead of bare wires being used for signalling a special type of wire is used, for which a patent application has been made. The wire comprises an insulated core, surrounded by an insulated copper spring. The spring is assembled, under tension, in one yard lengths on the insulated core. At each end of the individual springs a brass contact is fitted so that when they are threaded on to the core two brass portions will be in contact.

The insulated core is connected to one side of the rectifier mounted at the remote end of the system and the spring is connected to the other. Whilst the springs are under tension it will be seen that the circuit is completed. However, should any spring be pulled so that contact is broken with the spring next to it, then the circuit will be opened and the conveyor

stopped through the "SB" Panel.

The fact that AC signalling systems are now essential on a series of conveyors running in tandem has made it practicable to develop a transformer unit with two output voltages, one of 115, and one of 15, for lighting and signalling respectively, each circuit being in a separate compartment of the flameproof enclosure.

The "LS" combined lighting and signalling transformer unit, manufactured by Hugh Wood and Co. Ltd., can be directly connected to the busbar chambers of gate-end boxes to N.C.B. standard specification, and adaptors are available to enable this unit to be directly fitted to most of the existing types of gate-end boxes likely to be encountered in service. Through-going cable attachments can also be provided, but where these are used it is necessary for a suitable support to be used to relieve the weight of the overhang. These supports are supplied to connect to the skids or lower linkage of the associated switchgear.

The lighting transformer is capable of supplying 5 - 100 watt lamps, or, alternatively 8 - 60 watt lamps.

Caterpillars Show Their Paces

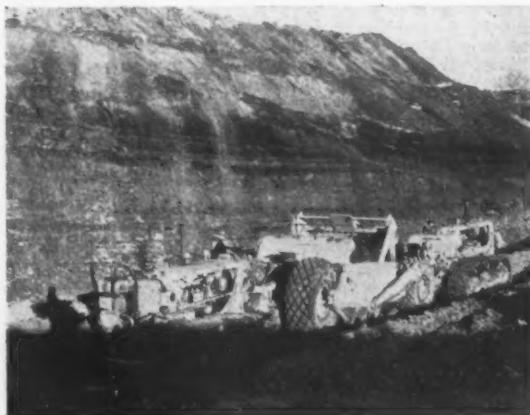
Recently demonstrated for the first time in this country, the Caterpillar D9—the biggest tractor in the world—is now handling some of the most difficult jobs opencast coal mining can produce. The D9 is actually returning routine operation times in soils nearing the density of solid shale.

Such a site was recently excavated at the Hood Hill extension site, Wentworth, near Sheffield. Here the subsoil consists of hard shale with iron ore veins, covering a 19 in. coal seam 35 ft. beneath ground level. The D9, hauling the only Caterpillar No. 90 scraper in the U.K., was push-loaded by a D8, which was also push-loading two D8 tractors hauling Caterpillar No. 80 scrapers.

Operated by Messrs. Shephard, Hill and Co. Ltd., under contract with the National Coal Board, the extension formed part of the Hood Hill I and Long Plantation sites. Both these sites were coaled some months ago.

The cut in the extension site was about 250 ft. long with a steep up-grade at the end where the seam ran out. Average loads on this short haul were 25 cu. yd., giving an hourly production figure for the D9 of 325 cu. yd. This was estimated by the operator to be equivalent to 220 cu. yd. in the bank, or 18 cu. yd. per load.

As excavations grew deeper, so the gradient at the end of the cut to the dumping run increased. Here the 286 h.p. D9 hauled the No. 90 scraper up a 1 in 4 gradient in second gear.



The Caterpillar D9 nearing the end of the cut at Hood Hill

MINING MISCELLANY

China is reported to be negotiating for the purchase of tin, crude oil and rubber from Indonesia.

It is reported from Turkey that the Mineral Research Institute has applied to the Ministry of State Exploitations for a monopoly on prospecting for uranium.

De Beers Consolidated Mines has voted £25,000 to Kimberley schools for the furtherance of education, of which £15,000 will be for private institutions and £10,000 for Government secondary schools.

A new plant for refining manganese ore is to be built in the near future at Casas Grandes, State of Chihuahua, Mexico. Approximately S.S. \$400,000 will be invested in this plant. The money will be found from local sources.

Krupp's, of Essen, have concluded a \$4,300,000 barter deal with Turkey based on supplies of Turkish chrome ore. Krupp's will supply one open-hearth furnace and ancillary installations for the steel works of Karakuk, the capacity of which is to be raised from 180,000 to 400,000 tons annually.

The world's largest ore shaft house will be fitted with eight ore hoists and one service hoist designed by the Swedish A.S.E.A. works. It belongs to the Swedish Lapland iron-ore mines at Kiruna. The combined capacity of the hoists aggregates 4,000 tons of ore per hour, a quantity sufficient to fill 130 railway wagons.

Mr. Tin U, the Burmese Economics Minister, has arrived in Bonn with a delegation of five for trade negotiations. The delegation is interested particularly in obtaining German technical aid to help in the economic development of Burma.

Mobrun Copper has been formed under a Quebec charter to acquire and operate property in the Clerc area of Canada, about 10 miles north-east of Noranda. The property consists of 20 claims totalling 2,000 acres. It was originally held by Rio Canadian Exploration.

It is reported from Poland that rich deposits of iron ore have been discovered in Klobuck district, Stalinogrod voivodship. Two up-to-date mines Wreczyna and Malice, are being constructed. Next year, construction of another mine and of a modern roasting plant will begin.

The two leading French aluminium and chemical producers, Compagnie Pechiney and Société d'Electrochimie Ugine, and the shipping concern Société Anonyme de Gerance et d'Armement, have founded a new company, La Société Navale de la Sanaga. The new company will ensure supplies of materials by sea to the two companies. Two 8,000 ton freighters have already been ordered for it.

The West German firm "Wedexo" has surveyed the area of Lampung (Sumatra) for iron ore and manganese ore, and Bukit Asam for additional coal. The firm is on contract to the State Planning Bureau with the object of advising on the possibility of setting up a steel industry. A report should be ready by April, 1957. The survey team is also to report on iron ore at Djampang Kulon and on iron ore and coal in South Borneo. It is not the intention of the Planning Board to begin setting up a steel plant, even if it is judged feasible, till 1960.

Benguet Consolidated Mining Co. has been reorganized and reincorporated under Philippine law. The new charter extends the power of the company permitting it to engage in any type of business. A proposition of merger between Benguet Consolidated Inc. and Balatoc is under active consideration. Benguet owns 64½ per cent of the latter company's shares.

The Anaconda Company (Canada) Ltd., has resumed exploration work on the property of Lake Superior Iron Ltd., northwest of Nakina, Northwestern Ontario. Anaconda has a 2-year option to purchase the property. Lake Superior Iron indicated 164,000,000 tons grading approximately 30 per cent iron to a depth of 500 ft. A total of 100,000,000 tons, was indicated to a depth of 300 ft. Metallurgical tests have been made towards concentrating the magnetite material into a higher grade, saleable product.

Disused copper mines at Hollyford, County Tipperary, have been inspected by mining engineers attached to the Can-Erin Group of Toronto. These workings have not been in produc-

tion for almost 100 years, but are considered high grade deposits in a concentrated area.

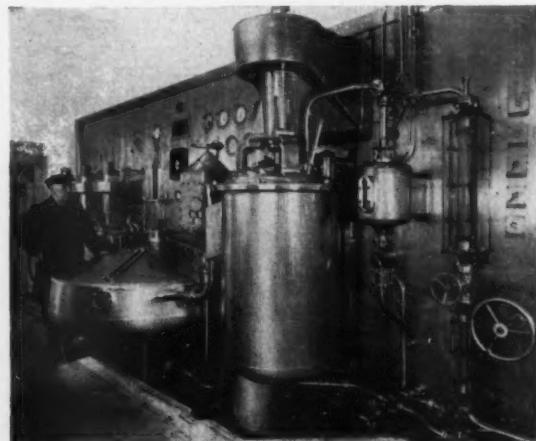
Diamond drilling has started on the Hotham and Frechette Islands mining property of Poly Ores Mining Co., Ltd., under the direction of Hopkins Exploration Consultants. The drilling is designed to test electromagnetic conductor anomalies and known zones containing copper, gold, silver and tungsten. Surface sampling is being carried out and assays are awaited on the first 70 samples. The president of Poly Ores is G. H. Clare and the head office is at room 614, 62 Richmond St. West, Toronto 1.

On July 2 Air Charter Ltd. was to fly to Mesters Vig, Greenland an Autair Limited Westland S.51 helicopter, which is to be used by a Danish mining company. The helicopter was to be partly dismantled at Croydon, moved to Southend Airport by road, and loaded onto an Air Charter Limited Bristol freighter. Because of ice formation in the Fjord sea transport was out of the question. Transportation by air will allow the helicopter to be available for the whole of the two-month period when full daylight is available. The total weight of the helicopter, including spares and crew, is approximately 6,000 lb. A second helicopter, the immediate need for which is not so urgent, is being shipped to Iceland.

The Malayan Federal Government has approved the formation of a company for the joint development of the Temangan iron ore mines in Kelantan (north-east Malaya), according to the Japanese firm Kokan Mining Co. The company will be known as the Oriental Mining Company and will have a capital of 1,500,000 Straits dollars. Kokan will invest 49 per cent of the capital, mainly in the form of machinery and mining equipment, the balance being held by two British companies, Andrew Weir and Bousstead. The mine will supply 300,000 tons of 48 per cent iron ore in 1958 and it is hoped to increase production to 500,000 tons annually after 1959.

According to Mexico's Treasury Minister, Antonio Carrillo Flores, relief to small miners in the form of production tax reductions and exemptions under a modification to the Law of Mining Development and Taxes will result in an increase of about 10 per cent. in overall mining production. The new tax law would permit small operators to reinvest about \$6,000,000 in increasing their operations in the exploitation of low grade ores in the next two years. The Minister predicted that the new measure would increase gold production by 376 kgs., silver by 180,850 kgs., lead by 30,000 tons, zinc by about 20,000 tons, and copper by some 15,000 tons per year.

The central purpose of a visit by members of the Technical Press on July 5 to the principal works of the Nobel Division of I.C.I. at Ardeer, Ayrshire, Scotland, was to see the new Ardeer Biazzini continuous process for the production of nitroglycerine. Although the Biazzini process is now used in some 50 plants throughout the world, the one in operation at Ardeer is



The polished stainless steel nitrator is linked to the separator. In the background are the three washing vessels. These vessels are connected in series

the most highly perfected of those in operation not only because it is one of the latest to be built but also because the ideas and suggestions made by I.C.I. have been incorporated in the design by Dr. Biazz. The new plant which cost about £200,000 was made in Switzerland in polished stainless steel and incorporates a comprehensive system of electric controls and warning devices. If, for any reason, the operator makes a mistake or there is any irregularity in the operation of the plant automatic controls immediately take over ultimately drowning the entire contents of the plant in external water tanks. A particularly notable feature of the plant is that it is hoped to have the plant operating by remote control in the near future—probably the first time in the world such an application has been made to a nitroglycerine plant.

The Press were also shown several different types of explosives and blasting accessories and some of these will be referred to in our issue next week.

Members of the Technical Press were afforded the opportunity last week of seeing two films presented by Holman Bros., the well-known manufacturers of compressed air equipment. The films featured the Holman Tractair which is both a portable compressor and tractor and consists of a compressor unit of normal Holman design mounted on a Fordson Major tractor, powered from the existing rear power-take-off.

The Royal School of Mines Journal has been in existence for five years. The latest issue received of this authoritative and attractively produced publication includes, among other interesting articles, notes on niobium and its sources by R. A. Mackay, a review of airborne geophysical surveying by R. D. Schofield, and an account by A. M. Bensusan of the development from scratch of a small gold mine in Southern Rhodesia.

PERSONAL

Mr. E. A. P. Levett Scrivener and Mr. J. H. Thomlinson have resigned from the board of Rukuba Tin Mines.

Mr. R. D. Peters has left the boards of the Consolidated African Selection Trust and its subsidiary Sierra Leone Selection Trust.

Mr. J. A. Caldecott and Mr. J. N. Kiek have been appointed to the boards of the London and Rhodesian Mining Investment Trust. Mr. Caldecott has also joined the board of Henderson's Transvaal Estates. Mr. H. Tevis has left the board of the London and Rhodesian Mining and Land Company.

Mr. Robert Horowitz has been appointed an additional director of Geldenhuys Deep.

Mr. Lewis B. Harder, president of the South American Gold and Platinum Company, has been elected a director of Frontino Gold Mines Ltd. He has nominated Mr. Frederick Alexander Mann to be his alternate and this appointment has been approved by the board.

Sir Victor A. L. Mallet, has been appointed chairman of the board of the Skefco Ball Bearing Co. in succession to the Rt. Hon. Lord Glyn of Farnborough, who retired from the Board on June 30.

The Hon. T. H. Brand, and Mr. J. N. Hogg have been appointed to the board of Borax Consolidated.

Sir George H. Nelson, chairman and managing director of the English Electric Co., has relinquished the position of managing director in order to devote the whole of his time to the duties of executive chairman of the company. Mr. H. G. Nelson, formerly deputy managing director, has been appointed managing director.

Mr. H. W. G. Hignett has been appointed assistant managing director of Henry Wiggin & Co. Ltd.

Mr. N. B. Davies has resigned as a director of Climax Rock Drill and Engineering Works. Mr. W. G. Bennett has been elected technical director of the company.

Mr. J. V. Franklin, managing director of Black and Decker Ltd., has returned from a tour of South Africa. As a result of this visit, two new sales representatives have been appointed, so that the potential of the extensive African market may be better developed.

The formation of a new company known as Efco-Edwards Vacuum Metallurgy Ltd. has been jointly announced by Edwards High Vacuum Ltd., and the Electric Furnace Co. Ltd.

who, for some time, have been working together on vacuum metallurgical problems. The first products of the new company will be a range of vacuum melting and pouring furnaces designed for research and production, as well as other standard plant for sintering, brazing, annealing and degassing metals.

We have received from the Missouri School of Mines and Metallurgy its Catalogue for the 1956-1957 sessions and also its Directory of Missouri Geologists, which is issued quarterly.

The New York World Trade Fair 1957 will be held in the new Coliseum Building, New York, from April 14-27. The London representative of the Fair is Mr. A. P. Wales, Dudley House, Southampton Street, London, W.C.2. The Fair is organized by the Charles Snitow Organization Inc., Suite 1103, 331 Madison Avenue, New York 17.

The name of the Chemical, Metallurgical and Mining Society of South Africa has been changed to the South African Institute of Mining and Metallurgy. The Secretaries and address of the Institute remain unaltered.

We have received from the Institute of Metals the programme of the 48th annual autumn meeting, 1956, which is to be held in Germany from September 17-25 by invitation of the Deutsche Gesellschaft für Metallkunde.

The Institute of Quarrying has branches in South Africa, Norway and Australia, with members in a number of other countries. Its strongest branch is in New South Wales with headquarters in Sydney. Now there is likely to be another Australian Branch with headquarters in Melbourne. About 200 members and guests were present at the official opening of the first conference held by the Australian Branch, which took place from May 28-31. There was an attendance of about 80 at each of the technical sessions.

The Convention of Chemical Sciences 1956 will take place in Paris from November 18 to December 3 at the same time as the 4th Salon de la Chimie—Caoutchouc-Matières Plastiques. It will include several important meetings, notably the 29th International Congress of Industrial Chemistry, the 1st European Congress of Corrosion, the European Conference of Chemical Engineering, and the Paris Technical Meetings.

The 6th Commonwealth Mining and Metallurgical Congress will be held in Canada from September 8 to October 9, 1957.

A meeting of the North of England Institute of Mining and Mechanical Engineers will be held at the Institute, Neville Hall, Newcastle upon Tyne, on August 11, 1956, at 2.30 p.m.

The proceedings of the Symposium held by the Institution of Mining and Metallurgy on September 22, 1955, have now been published under the title of "Mineral Resources Policy." Copies are obtainable from the Secretary of the Institution, 44 Portland Place, London, W.1. Price 10s. 6d.

The Institution of Mining Engineers will hold its 63rd annual general meeting in London on January 31, 1957.

CONTRACTS AND TENDERS

The following future authorization has been announced by the International Co-operation Administration of the U.S. Government:

Liberia.

Diamond and placer drilling equipment (PIO/C No. 69-21-021-5-50865). Terminal delivery date, 31/10/56. Value, \$U.S.28,250. B.O.T. Ref. ESB17109/56/ICA. Telephone enquiries to Chancery 4411, Extension 360.

British Ropeway Engineering Co. has received a contract worth about \$1,500,000 (£550,000) from Aluminium Union, a fully owned subsidiary of Aluminium Ltd., to provide an aerial ropeway for erection in Jamaica. The ropeway will form part of the project of Aluminium Limited for the expansion of alumina production. It is hoped to have it in operation by the autumn of 1958.

Following a visit of a commission of delegates from the U.S.S.R., at which time Rubber Improvements Ltd. arranged for members to visit mines in order to see "Leonex" and "Rilon" belting under working conditions, an order has been received by the company. This is believed to be the first order placed by the U.S.S.R. for PVC belting and the value runs nearly to five figures. The belting is to be delivered by mid-August and is understood to be for a modern installation in the vicinity of Moscow.

METALS, MINERALS AND ALLOYS

COPPER.—It has been an eventful market for copper in the past week. In this column last week it was reported that in the United States it was being said that, as soon as the big producers dropped their price to 40 c. per lb. the custom smelters would lower theirs to 36 c. In the event American Smelting and Refining initiated a new custom price of 37½ c. on July 6 and all other smelters fell into line. Business at the new price was not brisk. On July 9 Kennecott stated that its wage negotiations were going well and would be completed by July 12. Finally, on the market close Phelps Dodge announced a new price effective July 10 of 40 c. Kennecott joined in on July 15 with a price of 40 c. and Anaconda followed with effect July 11. Presumably, under their existing agreement, Chilean metal will be sold at 40 c. in the United States. It was interesting to note that just before the fall consumers had been making protests about the reluctance of the producers to follow the world decline claiming they were being put at a competitive disadvantage. This was an ironic turn of events since the American producers have always justified their pricing policy as protecting consumers from the vagaries of a market. This criticism probably did not cause the lower prices but it was surprising that the producers let matters go so far that protests were registered.

Meanwhile scrap copper has been strengthened and from a low point of 28½ c. had climbed back to 30½ for No. 2 scrap metal. There is nothing illogical in these contrary but simultaneous price movements since scrap was reflecting the immediate market view. In part the firmness is a mere reflection of London. But there is also the feeling that the world copper prices ought to be a good deal nearer together for the good of everybody. Perhaps the bearishness has been overdone and with the big producers showing signs of coming down the possibility of a more logical price structure exists. Katanga, after cutting its price from the equivalent of 36½ c. to 34, raised it again to 35.10 on the ground that the cut was excessive.

Some of these sentiments have been present in London where copper has staged an appreciable recovery although the movement has somewhat levelled off. The L.M.E. decline may have been a bit too rapid and another pause may be necessary; the contango disappeared in the course of the week. But London has also been affected by the news from Rhodesia. The tonnages lost in the recent crop of strikes have not been significant in the context of present demand and supply. What has more affected sentiment has been the series of outbursts from Rhodesia that the strikes were politically inspired owed much to racial prejudice and justified government intervention on the ground that they were illegal. Perhaps speeches and press comment have been a bit hot-headed—from the safe distance of London they certainly seem so—but they have definitely given the impression that one cannot weigh up these strikes by counting the tonnage lost and that more trouble lies ahead. At the present the situation is that all the strikes are over and that the Chamber and African Union have met to discuss them, but that the meeting was adjourned without any agreement being reached.

From Chile it is reported that the output from the American run mines in the first half of 1956 was 201,053 tonnes against 207,816 in the same period last year. The fall is attributable to strikes around the turn of the year and a lower grade of ore from Potrerillos. Output for the year is still expected to exceed that of 1955.

Atlas Consolidated Mining and Development Corporation is to build a smelter and refining plant to produce copper from the concentrates from the Toledo mine on Cebu. The plant will be installed at Sangi near Toledo and will be able to handle not only the output from Toledo but from future Atlas operations or other Philippine copper mines.

Five drilling rigs and pumping equipment have been delivered to the Allihies copper mines in County Cork. Drilling operations will start shortly.

LEAD.—Lead has been quiet in the past week with no change in the quotation of 16 c. per lb. Although the demand and supply outlook is not particularly cheerful for producers the market is well sustained by a number of factors. First is the stockpiling of domestic and surplus foreign metal; second is the unrest in the Australian docks over new working methods which at any time might produce substantial dislocation; thirdly there is an unusually encouraging rate of delivery of batteries. The May rate was 1,714,000 against 1,572,000 a year ago. It is true that whereas in 1955 the May figure was up by around 100,000 compared with January, the May, 1956, figure was over

250,000 down on January, 1956, nevertheless, the increase of May, 1956, over April was 384,000 and the increase of May, 1955, over April was only 29,000. The fantastic jump that came in the late summer of 1955 cannot be repeated, but the delivery rate is keeping up surprisingly well all the same. The first 7,000 tons of lead and zinc ore from Greenland have been shipped to Belgium.

TIN.—The tin market on both sides of the Atlantic has been under the influence of the threat from Malaya in the past week. This influence must have been even stronger were it not for the strike in the American steel industry. However, tin supplies are none too plentiful and if the ending of the American strike were to coincide with the opening of a Malayan strike a really uncomfortable squeeze would eventuate.

The situation in Malaya is so confused that it would be best to sort it out. There are four separate disputes. A wildcat strike which began on June 27 against the employment of an "anti-union" Chinese is still on and now involves more than 1,000 workers. It is concentrated in the Batu Gajah district. The Malayan Tin Dredging Company, with which the dispute began, has stated that the 365 original strikers are now "automatically dismissed". Secondly, there is the go-slow that has been instituted to bring pressure to bear on the dispute on back pay for days of rest. Sunday work has been banned and the union claims that on July 8, 18,000 workers refused to work on union instructions. Thirdly, there is the sudden demand for higher wages and better conditions lodged on July 7 on behalf of 16,000 miners at European mines. This demand, which falls under 17 heads, must be met within 14 days or the union will take a strike ballot. The claims are intended to take effect from August 1. Finally there was a lightning strike which started on July 9 over a dispute on rosters and which involved 7,000 men these men returned to work on the order of their union on July 10. However, to cap all this the union decided to break off negotiations with the Malayan Mining Employers' Association and to try to reach a settlement with individual companies. Moreover it has started its new wage claim with unusual belligerency by threatening a strike if it is not granted almost immediately. The union seems in a fair way to bringing chaos to the industry and is not going to do itself any good by trying to fight so many battles at once. It has probably recognized this danger because the ending of the agreement with the Employers' Association has been "temporarily suspended". The latest news is that the union is cooling off and tin consequently fell sharply on world markets again.

ZINC.—The zinc market in the United States has been practically at a standstill in the past week as a result of the steel strike. The quoted price remained at 13.50 c. per lb. for prime western grade East St. Louis. It is too early to say whether the strike will cause any change in the quotation if it continues. For one thing the Federal conciliators have already made their first moves. For another there are the old standbys of stockpiling and trouble in Australia to keep values up. Furthermore, it has to be remembered that the last American steel strike led to a sharp placing of orders when it was over and touched off a boom that made its own momentum. That could happen again. There are still, of course, one or two steel firms at work so demand from that quarter has not entirely ceased. Further, a sizeable order was placed recently for special high grade in the belief that automobile output would begin to pick up in the early autumn. It is too easy to make a summer of this swallow—but the automobile industry must pick up some time this year.

ALUMINIUM.—Despite the demands presented to aluminium producers by the United Steelworkers, not much consideration is as yet being given to the possibility of an aluminium strike in the U.S. It is pointed out that should negotiations run past July 31—expiration date for the Alcoa-Reynolds contracts—it could be avoided either by extension of the present contract with a retroactive clause, or by agreement on a tentative contract subject to final settlement along the lines of the eventual steel contract.

The effects of the steel strike are already being felt in the secondary aluminium industry, where smelters find their market for de-oxidizing ingot is dwindling, in some instances to vanishing point. With virtually every available pot on line, however, primary producers are operating at peak level. It is anticipated that output for 1956 will exceed 1,760,000 s.tons—approximately twice the tonnage volume for 1951. Production for the first six months totalled well over 860,000 tons. U.S. producers have completed their expansion programmes for 1956, except for about 25,000 tons now being installed by Rey-

nolds at existing facilities.

The Harvey Machine Company expects to resume construction work on its 54,000-ton aluminium reduction plant about August 1. The company has borrowed \$44,000,000 from three banks to help finance this project. It has also agreed to give the General Services Administration the first option on any aluminium produced.

NICKEL.—From the U.S. come reports that the black market for nickel is dwindling as the requirements of the motor industry diminish. In the U.K. a downward trend in the price of pure nickel scrap had previously been noticed, this trend being ascribed in part to the arrival of increased quantities of Japanese virgin metal and secondly to the reduced demand from the motor industry. Japanese nickel appears to be having a significant impact on open market supplies. The forward shipment price has ranged from about £1,700 to £1,750 per ton c.i.f. Europe, depending on delivery from late 1956 onwards. The Shumiura Kako Co., one of the two Japanese nickel producers, has raised its prices of pure nickel supplied to domestic consumers by an average of 200,000 yen per ton to the level of export prices. The highest export prices to date for pure nickel were stated to be 2,150,000 yen per ton for high purity nickel, 2,050,000 for gilding grades, 1,950,000 for alloying grades, and 1,850,000 for others. (The current value of the Japanese yen is 1,007 to the £1.) Five Japanese smelters are reported to be negotiating for the export of 620 tons of nickel to France. According to the Sumitomo Mining and Smelting Co. price is now the main factor in the negotiations. French importers are offering \$2.10 per lb. for nickel metal and \$4.30 per kilo for ferro-nickel, both c.i.f. France. Japanese smelters are adhering to their original quotations of \$2.20 and \$4.50 respectively. The company also stated that Japanese smelters had been offered 30,000 tons of New Caledonian nickel ore.

Work is progressing on expansion of the facilities of the French company, Le Nickel, at Donambio in New Caledonia. The building for a new refinery is going up and four new electrolytic furnaces are being assembled. In full operation these will have a capacity of 10,000 tons of nickel annually. Last year the company produced 10,680 tonnes (nickel content) of various products against 9,000 tons in the preceding year. However, a decline in the Donambio plant's output for 1956 is anticipated because of work on the extension of the hydroelectric dam on the Yate river.

Metallurgists of the U.S. Bureau of Mines are running pilot-plant scale tests of Philippine nickel-iron ores to find out whether it is economically feasible to produce high-grade ferro-nickel from them. Earlier studies have shown that electric smelting of such ores is feasible and several U.S. firms have expressed interest in commercial exploitation of the Surigao nickel-ore deposits.

The French company, Société d'Electro-Chimie, Electro-Metallurgie et des Acierées Électriques d'Ugine, has received a general prospecting permit for chrome and nickel ores in Madagascar for two years. This follows the development of a special process, which makes it possible to refine low-grade nickel ores economically. It has been stated that Ugine will not only exploit the old nickel mines in Madagascar, but will also extend prospecting. This would make the company partly independent of nickel supplies from New Caledonia for its alloy steel production.

The London Metal Market

(From Our Metal Exchange Correspondent)

All markets have shown a rising tendency although turnovers have been very disappointing. In general, demand has diminished owing to the holiday season, the steel strike in America, and threatened strikes in the U.K. and general reluctance to buy even what is necessary on a market which is rising without any apparent reason.

The rise in the copper price seems to be largely technical, as also is the re-establishment of the backwardation, and the latter is particularly difficult to understand in view of the amount of metal in registered warehouses and the fact that a large proportion of it is in the form of fire-refined wirebars which are not readily saleable. It is considered that the backwardation is only a very temporary phase, and no appreciable alteration in the price is likely to take place until it becomes necessary for the metal to flow across the Atlantic in one direction or the other: if Europe becomes a buyer then the price here will have to rise to about £300 per ton, whereas if America becomes the buyer the price here will fall to about £260 per ton. Overall, the price situation appears to be becoming more rational, as the U.S. producers have now reduced their price

to 40 c. per lb. and the custom smelters are reported to be selling at about 36 c. per lb. which latter is more or less in line with the R.S.T., Belgian and L.M.E. prices.

The tin market has been influenced by news on the labour situation in Malaya, but as this now appears to be less serious than was at one time thought, it is probable that prices will begin to sink again. On Thursday morning the Eastern price was equivalent to £764½ per ton c.i.f. Europe.

The undertone in both the lead and zinc markets has been helped by the continuation of the American Support policy and the still unsettled condition on the Australian water-front, and it is considered that the lead market is unlikely to show any large fluctuations in the near future, but in the case of zinc there is a chance of a downward movement if the American steel strike continues and there is further trouble in the U.K. motor industry.

Closing prices and turnovers are given in the following table:—

	July 5 Buyers	July 5 Sellers	July 12 Buyers	July 12 Sellers
Copper				
Cash	£274½	£275	£294½	£295
Three months	£274½	£275	£292	£293
Settlement		£275		£295
Week's turnover		6,225 tons		5,750 tons
Tin				
Cash	£744	£746	£748	£749
Three months	£739	£741	£745	£746
Settlement		£746		£749
Week's turnover		635 tons		1,010 tons
Lead				
Current half month	£113½	£114	£114½	£115½
Three months	£111½	£111½	£112½	£113½
Week's turnover		4,250 tons		3,000 tons
Zinc				
Current half month	£92½	£93	£94	£94½
Three months	£91½	£91½	£92½	£92½
Week's turnover		3,675 tons		4,400 tons

OTHER LONDON PRICES — JULY 12

METALS

Aluminium, 99.5%, £190 tons. Nickel, 99.5% (home trade) £519 per ton

Antimony— English (99%) delivered, 10 cwt. and over £210 per ton. Osmium, £24/27 oz. nom. Crude (70%) £200 per ton. Osmiridium, nom. Palladium, £8 Os./£8 10s. oz. Ore (60%) bases 23s. 6d./24s. 6d. nom. per unit. c.i.f. Platinum U.K. and Empire Refined £34/£35 oz. Imported £37 Os./£38 0s. oz. Zinc Current half month £92½ £93 £94 £94½ Three months £91½ £91½ £92½ £92½ Week's turnover 3,675 tons 4,400 tons

ORES, ALLOYS, ETC.

Bismuth	50% 7s. 3d. c.i.f.
	40% 6s. 3d. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semi-friable) 48%	£16 15s. 0d. per ton c.i.f.
.. Hard Lumpy (45%)	£16 15s. 0d.
.. Refractory 40%	£10 15s. 0d. per ton c.i.f.
.. Smalls 42%	£13 15s. 0d. per ton c.i.f.
Baluchistan	£17 5s. 0d. c.i.f.
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite, Raw (ground)	£21 0s./£22 0s. d/d
Molybdenite (85% basis)	8s. 2d. nom. per lb. c.i.f.
Wolfram and Scheelite (65%)	257s. 6d./262s. 6d. c.i.f.
Tungsten Metal Powder (98% Min. W.)	20s. 10d. nom. per lb. (home)
Ferro-tungsten (80%-85%)	17s. 10d. nom. per lb. (home)
Carbide, 4-cwt. lots	£41 3s. 9d. d/d per ton
Ferro-manganese, home	£66 per ton
Manganese Ore Indian Europe (46%-48%) basis 125s. freight ..	103d./105d per unit c.i.f.
Manganese Ore (43%-45%) ..	97d./98d. per unit c.i.f.
Manganese Ore (38%-40%) ..	90d./92d. per unit
Brass Wire ..	2s. 11½d. per lb. basis
Brass Tubes, solid drawn ..	2s. 2½d. per lb. basis

COMPANY NEWS AND VIEWS

Kaffirs Remain Firm

President Eisenhower's confirmation that he will remain a candidate for the coming election underpinned the strong rally on Wall Street. Indeed, between July 5 and July 11 *The Dow Jones Industrial Index* had risen 9.11 points to 509.65. Mainly under the stimulus of Wall Street, *The Financial Times Industrial Index* rallied from 174.3 to 176.7.

Kaffirs opened the week strongly and on July 6 the *Gold Index* penetrated the important resistance point of 83.7 only to fall back to 8.22 on July 11.

The June Quarterlies so far to be published have been received quietly, but favourably. A particular point of interest were Hartebeestfontein's maiden ore reserve figures which revealed 1,682,000 tons at 9.57 dwt. per ton. St. Helena's good rise in value to 441 in. dwt. from 418 in. dwt., hardened this issue, but on the other hand the market had to absorb the drop in payability at Harmony to 66 per cent from 81 per cent.

Good Borehole Values at Zandpan

A fourth deflection in Borehole Z5 situated 3,250 ft. east-south-east of Borehole Z 1 on Farm Zandpan No. 43, in the district of Klerksdorp has revealed a value of 1,075 in. dwt. from the Vaal Reef at 7,417 ft. Core recovery was, however, incomplete. A fifth deflection intersected the Vaal Reef at 7,418 ft. and gave a value of 1,259 in. dwt. In this case the core recovery was complete.

Good Progress at Winkelhaak's No. 1 Shaft

A report from Winkelhaak Mines covering the quarter ended June 30, 1956, disclosed that No. I Shaft had reached a depth of 664 feet. It will be recalled that the reef is expected at about 700 ft. in this vicinity and an intersection should thus

not be much delayed. Other results have disclosed that No. 1A Ventilation Winze had reached a depth of 816 ft.; No. 3 Shaft, 776 ft.; and No. 3A Ventilation Winze, 735 ft. Expenditure on shaft plant and equipment, etc., during the quarter totalled £349,083.

Bid for Frontino

Following negotiations with the South American Gold and Platinum Company referred to in a circular from Frontino Gold Mines on May 9, a proposal has been received for the exchange of one U.S. \$10 Debenture for each £1 preference share or £1 ordinary stock in Frontino. The Debentures will carry interest of 6 per cent per annum and will be repayable at par after eight years.

Bearing in mind that the sterling equivalent of the nominal value of each Debenture is about £3 11s., that they are well secured, and that suitable marketing arrangements will be available both in the U.K. and New York, the Frontino Board have no hesitation in recommending shareholders to accept the proposal.

Stilfontein Defers Deepening Margaret Shaft

In his statement to shareholders of Stilfontein Gold Mining Company, Mr. Jack Scott, the chairman, said that since the close of the year ended December 31, 1955, development in the Northern area, and in the Eastern area beyond the 600ft. down-throw fault, had exposed satisfactory values. Considerable faulting, he said, had been anticipated in the latter area, but development on 9 Level proved to be comparatively free from this trouble over a considerable distance. This would permit a more rapid opening up of the Eastern area than had originally been planned thereby rendering less urgent the deepening of the Margaret Shaft. The latter operation had accordingly been deferred until 1958, thus providing a welcome reduction in capital expenditure during 1956 and 1957.

LONDON STOCK EXCHANGE PRICES — JULY 5 - JULY 11, 1956

Finance	Price July 11	+ or - week	Rand Gold contd.	Price July 11	+ or - week	Diamonds and Platinum	Price July 11	+ or - week	Tin (Nigerian and Miscellaneous) contd.	Price July 11	+ or - week
African & European	3½	+	W. Rand Consolidated	1½	-	Anglo American Inv.	8½	+	Gold & Base Metal	1/3	-3d
Anglo-American Corpn.	7½	+	Western Reefs	28 7/8	+11d	Casts	23 3/4	+ 6d	Jantar Nigera	4/6	-
Anglo-French	21/6		O.F.S. Gold			Cons. of S.W.A. Pref.	10/6		Jos Tin Area	12/3	+ 1d
Anglo Transvaal Consol.	1 ½		Freddies	7/6	+3d	De Beers Dfd. Reg.	5 ½	+ 6d	Kaduna Prospectors	1/41 XD	
Central Mining (£1 shrs.)	51/9	+2/3	Fredricks Consolidated	4/-	-1d	De Beers Pfd. Reg.	13½		Kaduna Syndicate	2/11 XD	
Consolidated Goldfields	58/3	+3/1	Geduld	4½		Pots Platinum	12/10½		London Tin	9/3	-
Consol Mines Selection	1 ½	+ 5d	Geoffries	8½	+1d	Waterval	21/6	+ 6d	United Tin	10½ d	-3d
East Rand Consols	2/-		Harmony	25/9	+3d				Silber, Lead, Zinc		
General Mining	4	+ 6d	Lorraine	6/3	-1d	Copper			Balken Hill South	2 ½	-
H.E. Prop.	8/3	+ 6d	Lydenburg Estates	18½	-1d	Bancroft	43/9	+ 1/-	Burma Mines	4/6	-
Johnnies	40/-		Merriespruit	8/10½	+4d	Chartered	67/-	+ 3d	Consol. Zinc	48/3	-
Rand Mines	38	+ 10d	Middle Wits	12/9	+3d	Espesanza	3/1 ½	+ 1d	Lake George	13/3	-4d
Rand Selection	2 ½	+ 10d	Osfusis	63/3	+ 19d	Messina	8½	+ 2d	Mount Isa	20/-	- 1/-
Union Corporation	40/9	+ 10d	President Brand	58/9	+ 1d	Nchanga	12 ½ XD		New Broken Hill	39/3	-
Vereeniging Estates	42	+ 10d	President Steyn	31/6	+ 3d	Rhod.-Anglo-American	5 ½	+ 7d	North Broken Hill	4 ½	-
Wrts	1 ½	+ 10d	St. Helena	29/	+ 3d	Rhodesian Selection	47/3	+ 3/-	Rhodesian Broken Hill	10 ½	-1d
West Wits.	37/9	+ 1/-	Virginia Ord.	10/4½	+ 1d	Rhokana	37½	+ 2d	San Francisco Mines	23/6	-
			Welkom	21/6	-1d	Rio Tinto Reg.	2 ½	+ 6d	Ururiwa	4/-	-4d
			Western Holdings	3 ½		Roan Antelope	25/-				
Rand Gold						Selection Trust	4 ½	+ 2d	Miscellaneous		
Blyvoor	21/9	-7½ d				Tanks	7 ½	+ 3d	Base Metals and Coal		
Brakpan	6/-	+ 3d				Tharsis Sulphur Br.	4½		Amal. Collieries of S.A.	45 7/8	-
Buffelsfontein	25/10½	-6d	West Africas Gold						Associated Manganese	35/6	+ 3d
City Deep	10/9	+ 3d	Amalgamated Banket	1/5½	-4d	Tin (Eastern)			Cape Asbestos	8/10½	-
Consol. Main Reef	½	-6d	Ariston	4/11	-1d	Ayer Hitam	20/-		C.P. Manganese	27/10½	-1d
Crown	1 ½	-6d	Ashanti	16/6	-1d	Gopeng	9/9	+ 3d	Consol. Murchison	1 ½	-
Daggas	2½	-6d	Bibiani	2/3	+ 3d	Hongkong	5/4½	-3d	Natal Navigation	61/-	-
Dominion Reefs	17/9	-6d	Bremang	1/44	+1d	Ipoh	23/6		Turner & Newall	100/6	-
Doornfontein	22/-	+ 6d	G.C. Main Reef	1/4½	-1d	Kamunting	7/6		Wankie	16/6	-1d
Durban Deep	1 ½		Konongo	1/9	-1d	Kepong Dredging	3/3	+ 6d	Witbank Colliery	4½	-
E. Champas	2/9		Mariu	1/4d	-4d	Kinta Tin Mines	15/3	+ 3d			
E. Daggas	8/9	-3d	Taquah	1/7½		Malayan Dredging	8/4½	+ 4d	Canadian Mines		
E. Geduld (4s. units)	29/6	+ 3d	Western Selection	7/6	-4d	Pahang	11/6		Dome	\$26	-
E. Rand Props.	49/-	-3d				Pengkalen	13/3		Hollinger	\$32½	+ 2d
Geduld	3½					Petaling	7/6		Hudson Bay Mining	\$168	-2d
Govt. Areas	3/9		Australian Gold			Rambutan	25/6	+ 1/-	International Nickel	\$185½	-
Grootvlei	19/11	+ 1d	Gold Mines of Kalgoorlie	12/9	+1d	Siamese Tin	9-XD	-3d	Mining Corp. of Canada	£9½	+ 1d
Hartbeestfontein	38/9	-6d	Great Boulder Prop.	11/6	+ 3d	Southern Kinta	14/3	-3d	Noranda	\$111	-
Libanon	6/10½	+ 1d	Lake View & Star	15/6	-3d	S. Malayian	6/9	-3d	Quemont	£9½	+ 1d
Luipaards Vlei	13/10½	-1d	Mount Morgan	20/6		S. Tronoh	5/9	-6d	Yukon	5/-	+ 6d
Marievale	20/7½	-7½ d	North Kalgurli	6/7½		Sungei Kinta	14/-				
New Kleinfontein	3/10½		Sons of Gwalia	2/9	-3d	Tekka Taiping	6/-XRC	+ 6d			
New Pioneer	14/10½		Western Mining	9/6XD	+ 1d	Tromlo	8/10½				
Randfontein	41/6	+ 1/3									
Robinson Deep	8/-										
Rose Deep	9/3XRC	+ 3d									
Simmer & Jack	3/7½										
S.A. Lands	1 ½	-6d	Miscellaneous Gold								
Springs	2/6		Cam & Motor	7/10½		Tin (Nigerian and Miscellaneous)					
Stilfontein	25/-		Champion Reef	6/6	-6d	Amalgamated Tin	10/3				
Sub Nigel	1½		Falcon Mines	8/-		Borat Tin	44/-				
Vaal Reefs	33/-	-1/-	Globe & Phoenix	27/3	-3d	Bischi	4/3	-6d	Canadian Eagle	67/-	-
Van Dyk	2/3		Motopsa	10½d		British Tin Inv.	22/-	-1d	Shell	21/3	+ 3d
Venierspost	13/1½		Myaco	3/9	-1d	Ex-Lands Nigeria	2/3XD	+ 1d	Trinidad Oil	10 ½	-
Vlakfontein	17/1½		Nundydroog	9/10½	-1d	Grover Tin	15/3	+ 1d	T.P.D.	75/4½	-
Vogelstruisvlei	16/10½		St. John d'el Rey	24/9					Ultramar	50/3	+ 6d
West Driefontein	5 ½	+ 1½	Zama	2½	+ 2d					6d	-

Uncertain Outlook for Gold and Base

Although it is naturally most difficult to make an assessment of what Gold and Base Metal Mines of Nigeria's earnings might be during 1957, when the company has repaid all loans and will be producing tin and columbite entirely for its own account it appears—in the light of present circumstances anyway—that things will not be too easy.

At present columbite is selling on the free market at no more than £750 per s.ton of concentrate while tin concentrates should be fetching around £550-£600. Nor do current indications point towards a major rise in either price. On the other hand, although it would be no easy matter to estimate what Gold and Base's cost structure might be by 1957, it is certain that a considerable reduction will have been made from the 1955 total of £713 f.a.s. per l.ton of combined concentrates. Indeed, apart from any operative tightening up which might be effected, a major consideration is the columbite royalty payment which will have been reduced to around £60 compared with the previous level of £370. Yet it must be borne in mind that columbite output constitutes only a limited part of total operations, and the impact of this reduction on the company's overall cost level must, therefore, be restricted.

Accordingly, even without taking into consideration the possibility of production curtailments under the International Tin Agreement (which some observers believe are likely to arise in the latter half of 1957) it is hard to see how—failing a substantial rise in the price of columbite, or indeed, tin—the company's future operations are going to be particularly profitable.

No doubt reflecting thoughts of this nature, the market price of Gold and Base's 2s. 6d. ordinary shares at present stands at about 1s. 3d. Yet it seems that even this level could only be justified on the assumption that a return to the 7½ per cent level of distribution was imminent. But this is by no means certain. Meanwhile the company's production during five months of the current financial year has totalled 71 tons of columbite and 255 tons of tin concentrates.

Mining Year Book 1956

The 1956 edition of the Mining Year Book has now made its appearance. This book—the present volume represents the 70th annual issue—is published by Walter E. Skinner, 20 Cop-

thall Avenue, London, E.C.2, and the *Financial Times*, 72 Coleman Street, London, E.C.2. The price is 35s. net or 37s. post free inland and abroad.

Besides giving complete and up-to-date particulars concerning 951 companies operating in all parts of the world the names of directors and other officials; descriptions of property and plant; operating results; capital, dividends and financial results, this international standard reference work also contains a "Mining Engineers, Managers" section and the companies appearing in the book with which they are connected. A buyers' guide to manufacturers of mining plant, equipment and accessories, containing 652 headings is also included. Besides all this, gold production tables for Canada, Western Australia, Southern Rhodesia, the Transvaal and Orange Free State for the past eight year period are listed.

An interesting aspect of the latest edition concerns the addition of maps in respect of the Anglo American Corporation of South Africa's mining interests in Southern Africa, together with those of Rhodesian Anglo American on the Copperbelt. In addition, mines operated by the Rhodesian Selection Trust Group of Companies—also on the Copperbelt—are shown.

RECENT INTERIM DIVIDEND ANNOUNCEMENTS

Company	Year Ending	Dividend %	Date Payable	This Year to date	Total Last Year
Camp Bird ^a	31.12.56	10	Aug. 10	10	20
Coronation Synd.	30. 6.56	10	Aug. 31	10	20
Rambutan ^b	30. 6.56	10	July 31	27½	35
Vereeniging Brick	31.12.56	7½	Aug. 18	7½	22½
Vereeniging Estates	31.12.56	12½	Aug. 18	12½	32½

^a Subject to no major change, the company expects to maintain final of 10 per cent after 3 for 5 rights issue at par.

^b Third interim (1954-55, two interims of 7½ per cent, one of 10 per cent and final 10 per cent).

TUBING. 5in. and 6in., in approximate 20 ft. lengths, suitable rough surface or land drainage. Available in quantity at low price. Details from Cox and Danks Ltd., Wadsley Bridge, Sheffield, 6. Tel.: 44291.

THE CENTRAL MINING-RAND MINES GROUP**DIVIDENDS—JUNE, 1956**

The following dividends payable to shareholders registered in the books of the Companies at the close of business on 30th June, 1956, will be paid on or after 9th August, 1956. The dividends on shares to bearer will be paid after surrender of the appropriate coupons at the Office of the London Secretaries of the Companies, 4, London Wall Buildings, E.C.2, or, with the exception of the Company marked with an asterisk, at the Crédit Lyonnais, 19, Boulevard des Italiens, Paris.

The dividends will be payable in British currency, at par, at the rates declared in South African currency (Column No. 4), less South African non-resident shareholders' tax (Column No. 5).

NAME OF COMPANY (Each incorporated in the Union of South Africa).	Divi- dend No.	Cou- pon No.	Amount of dividend declared per share	Deduction in respect of South African non-resident shareholders' share tax, per share	Amount of dividend authorized after such deduction, per share	Provisional allowance of credit in the £ per share	Gross amount of dividend, per share	Rate of taxation applicable in the £ per share	Rate of United Kingdom income tax deducted, in the £ per share	Amount of United Kingdom income tax deducted, per share	Net amount of dividend per share
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Blyvooruitzicht G.M. Co., Ltd.	21	—	1 0	0.90	11.10	4 3	4 2.10	—	4 3	3.00	8.10
Consolidated M. Reef M. & E., Ltd.	93	90	2 0	1.80	10.20	4 3	2 4.19	—	4 3	5.99	1 4.21
Crown Mines, Limited	110	110	3 0	2.70	2 9.30	4 1	3 5.84	—	4 5	0.24	2 0.06
Durban Reedeport Deep, Limited	71	71	1 3	1.125	1 1.875	4 3	1 5.619	—	4 3	3.744	10.131
East Rand Prop. Mines, Limited	73	74	2 0	1.80	1 10.20	4 3	2 4.19	—	4 3	5.99	1 4.21
Modderfontein East, Ltd.	58	39	1 0	0.90	11.10	4 3	1 2.095	—	4 3	2.995	8.105
Pretoria Portland Cement Co. Ltd.	97	—	2 3	1.863	2 1.137	4 3	2 7.920	—	4 3	6.783	1 6.354
Rand Mines, Limited	106	106	2 9	2.450	2 6.550	4 3	3 2.794	—	4 3	8.244	1 10.306
*Transvaal Gold M. Ests., Ltd.	91	91	5	0.375	4.625	1 6	0 5.000	—	7 0	1.750	2.875

Where no figures are shown in Column No. 9, the rates of South African taxation applicable in the £ cannot yet be ascertained, as they are dependent on the final particulars of the South African taxation of the companies concerned which are not yet available.

PAYMENT OF COUPONS

COUPONS presented for payment at the Office of the London Secretaries will, unless accompanied by Inland Revenue declarations, be paid at the rates shown in Column No. 12, which are arrived at after deduction of United Kingdom income tax (Column No. 11), at rates reduced to allow of relief in respect of Dominion taxes (Column No. 10). If accompanied by Inland Revenue declarations, they will be paid at the rates shown in Column No. 6. They must be left at least four clear days for examination and may be presented any day (Saturdays excepted) between the hours of 11 and 2. Depositors will be notified at the time of deposit when the cheques will be ready. LISTING FORMS may be had on application.

COUPONS presented at the Crédit Lyonnais, Paris, will be subject to the deduction by them of French income tax from the amounts of the dividends shown in Column No. 6.

Note : The Companies have been asked by the Commissioners of Inland Revenue to state :—

Under the provisions of Section 348 and the 17th Schedule of the Income Tax Act, 1952, as amended by Section 26 of the Finance Act, 1953, relating to "unilateral relief" from double taxation, South African tax applicable to the dividends is allowable as a credit against the United Kingdom tax payable in respect of the dividends. The deduction of tax at the reduced rates in the £ (Column No. 10) instead of at the standard rate of 8s. 6d. in the £ represents a provisional allowance of credit at the rates shown in Column No. 7. The final rate of credit allowable to a particular shareholder depends on his personal rate of tax and may be more or less than the rates shown in Column No. 8. Revision of the credit involves corresponding adjustments of the gross amounts of the dividends for United Kingdom tax purposes (Column No. 9).

In the case of Transvaal Gold Mining Estates, Ltd., the provisional allowance of credit at the rate of 1s. 6d. in the £ is in respect of the South African non-resident shareholders' tax. It is not yet possible to say what further credit (if any) will be due on this dividend in respect of Dominion Income Tax paid on the Company's profits. Shareholders will be notified in due course of the rates of any such further credit and of the manner in which the credit may be obtained.

THE GROSS AMOUNT OF THE DIVIDEND, PER SHARE, TO BE INCLUDED IN ANY STATEMENT OF TOTAL INCOME FOR UNITED KINGDOM INCOME TAX AND SURTAX PURPOSES IS SHOWN IN COLUMN NO. 8.

4, London Wall Buildings, London, E.C.2.
July 6, 1956.

A. MOIR & CO.,
London Secretaries of the above-named Companies.

GOPENG CONSOLIDATED

MR. DONALD W. THOMAS ON POSITION IN MALAYA

The forty-third annual general meeting of Gopeng Consolidated, Ltd., was held on July 3, at the Registered Office, Redruth.

Mr. Donald W. Thomas (Chairman) presided.

The Reports and Accounts for the year ended September 30, 1955, having been circulated for the prescribed time, were taken as read, as was also the Chairman's Statement, circulated with the Accounts, which was as follows:—

The Accounts for the financial year ended September 30, 1955, show a profit of £78,301 after payment to the Malayan Government of £60,465 for Royalty on Ore Sales and provision of £131,890 for United Kingdom and Malayan Taxation.

Five dividends—two of 1/- each per £1 Stock, two of 2/- each per £1 stock, and one of 4/- per £1 Stock—paid in respect of the year under review, absorbed a nett amount of £113,289. After payment of the fourth Interim Dividend and before the Accounts were closed agreement was obtained with the Income Tax Authorities of the Company's taxation liabilities. As a result of the reduction of the liability the sum of £67,900—previously provided and no longer required and now shown in the Profit and Loss Appropriation Account as a credit—became available and justified your Directors in paying a fifth Interim Dividend.

From the available balance £3,304 was transferred to General Reserve, £16,368 was written off Capital Expenditure, and £9,234 was written off in respect of Rubber Estates Replanting Costs. After sundry small adjustments the balance unappropriated at September 30, 1955, was £57,858, an increase over the previous year of a little less than £4,000.

The attention of Stockholders is drawn to the Report of our General Managers, Messrs. Osborne and Chapel, circulated with the Accounts, where comparative figures of ground treated, tin-ore recovered, etc., are clearly set out. The volume of ground treated was a little less than during the previous year, but the recovery per cubic yard and the amount of tin ore recovered both showed appreciable increases.

From the Moynalpy Estate a profit of £5,687 resulted; from the Sanglop Estate (half share) a surplus of £2,535 was obtained, and further refunds of Replanting Cess amounted to £1,143.

Stockholders have been advised as follows of the production of tin-ore for the first six months of the current year:—

October/December, 1955—3,420 piculs=203½ tons.

January/March, 1956—3,420 piculs=203½ tons.

The Security position continues to improve and no "incident" occurred on the property during the year.

I am happy once again to record our appreciation of the services of the General Managers, the Resident Manager, and the Staff at the Mine and the Estates.

One of your Directors, Mr. W. E. Hosking, who recently visited the property has reported most favourably on the manner in which mining operations are being conducted, and also with regard to the future prospects of the mine.

INTERNATIONAL TIN AGREEMENT

The Indonesian Government has ratified the Agreement since the end of last year, but it is necessary for the formal Instrument to be deposited in the United Kingdom before the International Tin Council can come into being, and some delay has been experienced in this connection.

In the meantime meetings of the Interim Committee, which is responsible for formal preliminaries, have been held in London.

POLITICAL

Stockholders will no doubt be expecting me to make some reference to the present political situation in Malaya and to comment on the possible consequent effects on the tin mining industry in that Country.

The attitude of the Alliance Government towards "Overseas Capital and Private Enterprise" is clearly defined in an address delivered by His Excellency, the High Commissioner, to the Federated Legislative Council in November last, and I quote hereunder relevant passages:—

"... there is another matter to which I should refer, and that is the role of Overseas Capital and Private Enterprise in the present and future development of the Country. It is common knowledge that external capital and private enterprise have played a conspicuous part in the development of the Malayan economy, and it is no less than my duty at the present time of change and evolution in our political and constitutional affairs to make it clear that the Federation Government will

ingly recognize the contribution which Overseas Capital and Enterprise have so made . . . to the economic and social well-being of the Country as a whole. It is also the view of the Federation Government—and here I would remind you that I speak to-day on behalf of the Government as now constituted—that such capital and enterprise have no less an important role to play in the new and independent Malaya of the future. It is therefore, and will remain, the policy of the Government to accord to such industry and enterprise fair and considerate treatment; to foster an atmosphere in which the Overseas investor who is genuinely concerned with the development on sound lines of the Country's productive resources can invest and conduct undertakings in this Country without fear of discrimination or unfairness; and, last but not least, to continue the present policy whereby the Overseas investor can, after payment of legal taxes and obligations, remit to his Country within the framework of ordinary and reasonable Exchange Control requirements, funds for the payment of dividends and for the repatriation of his capital."

The Statement of Accounts and Balance Sheet, together with the Directors' Report, were received and adopted.

PENGKALEN

MR. DONALD W. THOMAS'S REVIEW

The forty-eighth annual general meeting of Pengkalen, Ltd., was held on July 3 at the Registered Office, Redruth.

Mr. Donald W. Thomas (Chairman) presided.

The Reports and Accounts for the year ended September 30, 1955, having been circulated for the prescribed time, were taken as read, as was also the Chairman's Statement, circulated with the Accounts, which was as follows:—

The Accounts for the financial year ended September 30, 1955, show a profit of £42,690 after payment to the Malayan Government of £33,306 for Royalty on Ore Sales and provision of £65,626 for United Kingdom and Malayan Taxation.

Dividends totalling 3/- per share on the Preferred Ordinary shares, and 2/6 per share on the Ordinary shares have been paid absorbing a nett amount of £49,650.

After crediting Profit and Loss Appropriation Account with taxation provisions no longer required, £5,380, and adjustments of previous years, £1,259, and writing off Capital Expenditure £302, the balance unappropriated as at September 30, 1955, is £60,991, which is £623 less than the amount brought forward from the previous year.

The decreased mining profit is due to slightly higher costs at the mine which are accounted for by the reduced volume of ground treated, with a lower recovery per cubic yard.

Your attention is drawn to the General Managers' Report circulated with the accounts and gives full details of the year's operation at the mine.

As already advised, output for the six months of the current year to March 31, 1956, has been 308½ tons, which is 70 tons more than the output for the corresponding period of the previous year. This is in accordance with the General Managers' forecast that a somewhat higher rate of output was anticipated during the current year.

The Security position continues to improve and there were no incidents at the mine during the period under review.

On behalf of the Board I have pleasure in expressing appreciation of the services of the General Managers, Resident Manager, Staff and Labour Force at the mine.

One of your Directors, Mr. W. E. Hosking, who recently visited the property, reports favourably on the way in which dredging operations are being carried out, and also on the prospects for the current year.

The Chairman then referred to the International Tin Agreement, and the political situation, and his remarks as set out in the report of the meeting of Gopeng Consolidated Limited, adjoining.

The Statement of Accounts and Balance Sheet, together with the Directors' Report, were received and adopted.

The BOARD OF TRADE has for disposal 1,000 flasks of MERCURY of good commercial quality, each weighing approximately 86 lbs. gross and reputedly 76 lbs. net. Full particulars and Forms of Tender (returnable by July 27, 1956) may be obtained on application to the Board of Trade, C. and G. 8 (b), Room 301, Lacon House, Theobalds Road, London, W.C.1 (Telephone No. CHAncery 4411, Extension 295 or 310).

TEKKA-TAIPING

MR. DONALD W. THOMAS'S REVIEW

The thirty-sixth annual general meeting of Tekka-Taiping, Ltd., was held on July 3 at the Registered Office, Redruth.

Mr. Donald W. Thomas (Chairman) presided.

The Reports and Accounts for the year ended October 31, 1955, having been circulated for the prescribed time, were taken as read, as was also the Chairman's Statement, circulated with the Accounts, which was as follows:—

From the Accounts you will see that the profit for the year under review was £6,760, after payment to the Malayan Government of £17,485 for Royalty on Ore Sales, and provision for United Kingdom and Malayan Taxation of £7,525.

The sum of £2,080 has been written off Capital Expenditure, and £2,535 has been transferred to General Reserve. The Profit and Loss Appropriation Account has been further debited with the sum of £351 in respect of charges relating to previous years, and credited with the sum of £1,820 in respect of provisions for taxation no longer required. The nett result is that the balance unappropriated at October 31, 1954, £37,174, has been increased to £39,788 as at October 31, 1955.

The attention of the Shareholders is drawn to the General Managers' Report circulated with the Accounts which gives the usual statistical information and comparisons with the previous year. It will be noted that decreases were shown in the volume of ground treated; in the tin ore recovered; and in the recovery per cubic yard, with a consequent increase in mining costs.

Output for the five months November, 1955/March, 1956, has been 37½ tons, as against 109½ tons for the corresponding period of the previous year.

In my Statement to the Members circulated with the Reports and Accounts for the year ended October 31, 1954, I said that—"The course the Dredge must now follow contains lower values and, consequently, if no unforeseen enrichments are encountered, a lower recovery is to be expected."—This in fact proved to be the case and in September, 1955, when recoveries became negligible it was decided to move the Dredge at flotation depth towards an area in which bores indicated the presence of higher values. As the Dredge approached this area, outputs improved, and in March, 1956, 316 piculs (18½ tons) of ore were recovered, and in April, 618 piculs (36½ tons).

The bores immediately ahead of the Dredge indicate that this improved rate of output may be expected to continue for some time.

Check boring of the two remaining selected areas of the main lease will commence as soon as weather conditions permit, the swampy nature of the ground having prevented this work being done earlier.

The Security position continues to improve and there were no incidents on the property during the year.

One of your Directors, Mr. W. E. Hosking, recently visited the property and was able to see for himself evidence of the dredging difficulties experienced during the past year. He reports that at the present rate of progress the Dredge should be operating in the area where bores indicate better values by the end of May or the beginning of June. He also advises that during these two months it will be necessary to suspend dredging operations for approximately three weeks in order that repairs may be carried out to the bracings and bulkheads of the bucket ladder.

I have pleasure on behalf of the Board in expressing appreciation of the services rendered during the year by the General Managers, the Resident Manager, and the Staff and Labour Force at the Mine, who have been working under difficult conditions.

I have to advise you that at an Extraordinary General Meeting held on February 20, 1956, Special Resolutions were carried with reference to the proposed Capital Repayment of 5/- per share and the reconstruction of the Capital of the Company. Application has been made to the Court to obtain the necessary sanction to give effect to the Special Resolutions which were passed.

The Chairman then referred to the International Tin Agreement, and the political situation, and his remarks as set out in the report of the meeting of Gopeng Consolidated Limited, adjoining.

The Statement of Accounts and Balance Sheet, together with the Directors' Report, were received and adopted.

KADUNA SYNDICATE LIMITED

FACTORS AFFECTING RESULTS

The 45th ordinary general meeting of Kaduna Syndicate Limited was held on July 10 in London, **Capt. Hugh Vivian, M.Inst.M.M.** (the chairman), presiding.

The following is an extract from his circulated review:—

Production during the year amounted to 241.5 tons of tin concentrate of shipping grade compared with 332 tons in 1954. The reduction in output was due in the main to two causes. The recovery of ore from the stripped section of the Hill Deposit at Werran, which had contributed materially to production in each of the previous three years, was completed in the opening weeks of the year under review. A strike of African labour in the last quarter of the year, preceded by a period of increasing unrest, caused a sharp drop of output in the second half of the year.

TRADING RESULTS

The average cost per ton of concentrate delivered f.o.r. was £276 16s. 9d., as compared with £196 2s. 1d. in the previous year and £232 6s. 1d. in 1953. The rise in costs was due to the decreased output and to higher labour costs. Sales of tin ore amounted to 250 tons and realized £136,996, an average of £526 15s. 10d. per ton. In the previous year, 340 tons were sold at an average price of £510 15s. 8d. per ton.

Mining profit for the year, after all charges, was £35,245, as compared with £62,996 in the previous year and £36,006 in 1953. To this mining profit there have been added £1,949, income from investments; £769, interest received, and £171, miscellaneous receipts. The charge against profits of the year for Income Tax was £14,780, and that for Profits Tax, £5,000, leaving a net profit for the year of £13,364.

The Directors recommend a final dividend of 25 per cent., less income tax, making 41 2/3 per cent. for the year.

Output for the current year to the end of May, at 166 tons, shows an improvement by 43 tons over that for the corresponding months of last year, but it should not be assumed that production for the whole year will show a proportionate increase.

The report was adopted.

KADUNA PROSPECTORS

CAPT. HUGH VIVIAN'S REVIEW

The 41st annual general meeting of Kaduna Prospectors Limited was held on July 10 in London, **Capt. Hugh Vivian, M.Inst.M.M.** (the Chairman), presiding.

In his review circulated with the report and accounts, the Chairman said that sales of tin ore amounted to 70 tons and realized £36,994, an average of £528 9s. 8d. per ton, compared with an average of £521 2s. 4d. per ton over a similar tonnage last year.

The mining profit for the year, after providing for various charges, was £2,486 as compared with £6,517 in the previous year. The net profit was £1,509 and with £3,079, unappropriated profits brought forward, and £86, provision for taxation no longer required, there was a disposable balance of £4,674.

The balance of expenditure on a building no longer required and disposed of, £301, had been written off, as had also a small loss of £140 on the redemption of £10,000 2½ per cent. Exchequer Stock, 1955. The Directors recommended a dividend of 12½% for the year, leaving £2,795 to be carried forward.

During the year, 32 tons were added to reserves and, after deducting the 37½ tons worked, there remained at December 31, 1955, 57½ tons measured and 49 tons indicated, making a total of 106½ tons. Although the greater part of the output was obtained from outside of the reserves, so that the net reduction in the reserves over the year was only 5½ tons, the Chairman said he must again emphasize the difficulty of foreseeing the future of the Company, in view of the ever-increasing cost of operations consequent on rises in wages and salaries.

The Chairman continued: We understand that, with the ratification by Indonesia of her decision to participate in the International Tin Agreement, sufficient support by producing and consuming countries respectively has been ensured for the Agreement to come into force. It is probable, therefore, that steps will now be taken by the participating governments to that end. The Company is likely to be called upon to contribute, in instalments, the equivalent of approximately 8.7 tons of metal to a Buffer Stock in connection with the Agreement, not less than 25 per cent. of which contribution must be in cash at £640 per ton.

The report was adopted.

TANJONG TIN DREDGING

MR. A. G. GLENISTER'S STATEMENT

The thirtieth annual general meeting of Tanjong Tin Dredging, Ltd., was held on July 12 at the Registered Offices, 65, London Wall, London, E.C.

Mr. A. G. Glenister, C.B.E., M.I.M.M., Chairman, presided. The following is his statement circulated with the Report and Accounts:

Your Board has pleasure in presenting the Report and Accounts for the year ended December 31, 1955, the results of which are most satisfactory. The profit for the year, after charging taxation amounting to £185,500, is £140,268 to which must be added the previous year's carry forward of £23,402. The five interim dividends amounting to 5s. per share (less income tax) absorbed £106,274 and the amounts written off Fixed Assets totalled £33,801. This leaves a balance of £23,595 which the Directors propose to carry forward to the current year.

The heavy burden of taxation again represents the major item of the Company's debits, the Tin Export Duty and Taxation together making a total of £277,000 contributed by the company during the year under review to Malayan and Home Government funds.

INCREASED OUTPUT

Full details of the year's working at the mine are given in the General Managers' report. The output for the year was 1,118 tons of tin-ore obtained from the treatment of 4,216,100 cubic yards representing an average recovery of 0.60 lb. per cubic yard. This compares with the 776 tons produced from 4,637,100 cubic yards during 1954 when the average recovery was 0.37 lb. per cubic yard. The average price obtained for the tin-ore produced was £451 per ton against £420 per ton during the previous year and working costs rose from 8.82 pence to 9.87 pence per cubic yard.

It will be noted from the General Managers' Report that Dredge No. 1 continued to operate on a southerly course in virgin ground until August when the eastern side of the working face entered previously dredged ground. Dredge No. 2 continued on a northerly course until May when it was turned to the east. Although there were no terrorist incidents on the property, security measures had still to be maintained at the mine and curfew and food control regulations remained in force throughout the year. Our particular thanks are therefore due to the General Managers and staff at the mine who carried out their duties so efficiently under difficult conditions.

The General Managers' report that prospects are favourable and returns to date have been excellent the output from the two dredges being 611 tons for the first five months of the current year against 395 tons for the same period last year. In the future much will depend on the effect of the International Tin Agreement on the industry and on the price of tin. The Agreement has at last been ratified by the requisite number of producer and consumer countries and may be brought into operation during the current year.

A CAPITAL DIVIDEND

Shareholders were notified, by the circular letter of March 21 last, of the completion of the sale of our Sungai Luas property for £300,000 and on April 5 received a special capital dividend of 5s. per share in respect of the capital profit resulting therefrom. This absorbed £185,834. Now that certain taxation points have been clarified, your Directors have decided to recommend that a further special capital dividend of 3s. per share be paid out of the remaining capital profit of £114,166 on the Sungai Luas transaction. The payment of this dividend will, if approved, absorb £111,500 of the £114,166 available. A Resolution authorizing this payment will be proposed as Special Business at the Annual General Meeting.

Your Directors are advised that in normal cases special capital dividends are not liable for Income Tax or Surtax and no deduction will therefore be made by the Company. Profits Tax at the distributed rate will, of course, be payable by the company in respect of this and the previous capital dividend of 5s. per share and it is proposed to utilize a transfer from the company's General Reserve Account to meet this charge.

OUTLOOK IN MALAYA

In view of the impending political changes in Malaya it is only natural that some nervousness regarding the future of Companies operating there and the safety of capital invested in the Malayan mining industry has been expressed. Events in, and statements emanating from Ceylon and Singapore have been quoted in support of this attitude, but I must emphasize that our property is situated in neither of these countries but in the Federation of Malaya, where the negotiations have been conducted with the utmost goodwill and where it has been officially stated by the High Commissioner that the Federation

Government willingly recognizes the contribution which overseas capital and enterprise have made to the economic and social well-being of the country as a whole, that such capital and enterprise will have no less an important role to play in a new and independent Malaya of the future, and that it will therefore remain the policy of Government to accord such industry and enterprise fair and considerate treatment and to continue the present policy whereby the overseas investor can, after payment of local taxes and obligations, remit to his country, within the framework of ordinary and reasonable Exchange Control requirements, funds for the payment of dividends and for the repatriation of his capital. In return, the new Government looks with confidence to those overseas enterprises which work in the Federation to identify themselves closely with the interests, aspirations and sentiments of the new and self-governing Malaya of the future.

The report and accounts were adopted and the proposed capital dividend was approved.

KINTA TIN MINES

MR. A. G. GLENISTER'S REVIEW

The fifty-fifth annual general meeting of Kinta Tin Mines, Ltd., was held on July 12, at the Registered Offices, 65 London Wall, London, E.C.

Mr. A. G. Glenister, C.B.E., M.I.M.M., Chairman, presided. The following is his statement circulated with the Report and Accounts:

Your Board has pleasure in presenting the Report and Accounts for the year ended December 31, 1955. The profit for the year, after charging £57,610 for taxation, is £40,638 to which must be added the £21,782 brought forward from the last accounts and £23,700, the total of the tax recovered and a transfer of funds no longer needed from the Taxation Reserve Account. Five interim dividends totalling 3s. 9d. per share (less income tax) absorbed £51,525 and £9,262 has been written off Property and Plant Account. This leaves a balance of £25,333 which the Directors propose to carry forward to the current year.

Taxation was again at a penal level and during the year under review the company contributed, in Tin Export Duty and Taxation, no less than £88,765 to Malayan and United Kingdom funds.

The General Managers' Report details the operations at the mine. The output was 379 tons of tin-ore obtained from the treatment of 1,238,300 cubic yards, representing an average recovery of 0.68 lb. per cubic yard. The relevant figures for 1954 were 352 tons, 1,170,800 cubic yards and 0.67 lb. per cubic yard. The tin-ore produced realized an average of £440 per ton as against £416 per ton in 1954 and working costs per cubic yard were 17.31 pence as against 16.00 pence.

At the mine, operations at the Lallang Section at the upper level were completed in June and at the lower level in October. This Section was then closed down and the plant and equipment concentrated at the Damak Section. No incidents occurred on the Company's property during the year but security precautions are still very necessary, although on a reduced scale. I should like here to express, on your behalf, our appreciation for the efficient and loyal services rendered by our General Managers and the staff at the mine.

It is understood that the International Tin Agreement has at last been ratified by the requisite number of producer and consumer countries and that it will probably be put into operation during the current year. Its effect on outputs and tin price remains to be seen but, subject to any interference which may result from its operation, the General Managers consider that the rate of production will be maintained.

The output for the first five months of the current year amounts to 167 tons as against 151 tons for the same period in 1955.

FURTHER CASH DISTRIBUTION

The Capital Reorganization scheme, set out in the circular letter to shareholders dated February 3, 1956, was duly approved and the repayment of 2s. per share was made to shareholders on April 14. At the same time, a further payment was made to shareholders of 7½d. per share, which is not liable to Income Tax, from a special capital dividend on our shareholding in Tanjong Tin Dredging Ltd. This was part of a capital profit made by Tanjong Tin Dredging Ltd. on the sale of certain of its mining leases.

It has recently been announced that Tanjong Tin Dredging Ltd. is proposing to distribute to its shareholders a further capital dividend of 3s. a share from the same source. Should this be approved, the amount receivable by your company on its holding of 62,052 shares would be £9,307 16s. 0d. which would be equivalent of 4.9104 pence per 5s. share of your

company. Your Directors propose that, if and when this is received, a further cash distribution of 4½d. per share shall be made to shareholders as a further capital dividend, without any deduction of tax. A Resolution to authorize the Directors to take such action will be proposed as Special Business at the Annual General Meeting.

The Chairman then referred to the Outlook in Malaya as detailed under that heading in the report of the Tanjong Tin Dredging Ltd.

The report and accounts were adopted, and the proposed cash distribution was approved.

IDRIS HYDRAULIC TIN

The forty-second annual general meeting of Idris Hydraulic Tin, Ltd., was held on July 11, at 73 Cheapside, London, E.C.

Mr. A. Glenister, C.B.E., Chairman, presided.

The following is an extract from his statement circulated to shareholders :

The yardage treated was slightly greater than that of the previous year while the output of 310 tons compares with last year's figure of 287 tons. The average net price received for our tin concentrates during the year was £428 per ton as compared with £395 per ton in the previous year. The average tin metal price for 1955 was £740 per ton as compared with £718 for 1954.

The profit for the year, after charging £34,754 for taxation, is £24,104, to which has been added the balance brought forward from last year, £20,916. Dividends totalling 1s. 4½d. per share (less income tax) have been paid absorbing £18,975, and the Directors recommend that the remaining balance of £26,045 be carried forward to the current year.

The Mining Lease over approximately 9½ acres of road and road reserve at the Batu Karang Section, to which I referred in my statement last year, has been approved, subject to the satisfactory deviation of the main road; this is now in hand. The new Mining Lease will form a valuable addition to the Company's reserves and will greatly facilitate the development of the Batu Karang Section as a whole—in fact, the deviation of the main road, which at present cuts right across the Company's working area, is essential to the recovery of values in depth in the ground adjoining.

At the last Annual Meeting I referred to the Kranji Section, returns from which were again very satisfactory. A good deal of ground is tied up in the slopes of the working faces adjoining the boundaries—slopes which are necessary to ensure the safety of our own workings and the adjacent road, railway and tailings areas. The French Company are similarly situated in regard to their working paddock and, over the years, discussions between them and ourselves have many times taken place with the object of devising some common scheme for the more complete development of the Kranji area as a whole.

Recently these discussions have been re-opened. Whether they will result in any scheme of mutual benefit to both companies, I cannot yet say, but I would remind shareholders that our Company has a very valuable asset in its Kranji Section and that, whatever the outcome of the present talks, the future can be faced with confidence provided nothing unforeseen occurs and the Company continues to maintain its present strong financial position.

As regards the immediate future, much depends on how soon the International Tin Agreement, which has now been ratified by the requisite number of producer and consumer countries, is brought into force and the manner in which it is operated. Its effect on outputs and tin price remain to be seen, but, subject to any interference which may result from its operation, the General Managers anticipate that the rate of output should be well maintained during the current year. The total output for the first five months of the current year amounts to 108½ tons of tin concentrates as against 120 tons for the corresponding period last year.

POLITICAL CHANGES

In view of the impending political changes in Malaya, it is only natural that some nervousness regarding the future of Companies operating there and the safety of capital invested in the Malayan mining industry has been expressed. Events in, and statements emanating from, Ceylon and Singapore have been quoted in support of this attitude, but I must emphasize that our property is situated in neither of these countries but in the Federation of Malaya, where the negotiations regarding the changes were conducted with the greatest goodwill, and where it has been officially stated by the High Commissioner that the Federation Government willingly recognizes the contribution which overseas capital and enterprise have made to

the economic and social well-being of the country as a whole, that such capital and enterprise will have no less an important role to play in a new and independent Malaya of the future, and that it will therefore remain the policy of Government to accord such industry and enterprise fair and considerate treatment and to continue the present policy whereby the overseas investor can, after payment of local taxes and obligations, remit to his country, within the framework of ordinary and reasonable Exchange Control requirements, funds for the payment of dividends and for the repatriation of his capital. In return, the new Government looks with confidence to those overseas enterprises which work in the Federation to identify themselves closely with the interests, aspirations and sentiments of the new and self-governing Malaya of the future.

The report and accounts were adopted.

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ST. JOHN d'el REY MINING CO.

The Ordinary General Meeting of the St. John d'el Rey Mining Company, Limited was held on July 5 in London.

The Rt. Hon. Lord Remnant M.B.E., the chairman, in the course of his speech said:—Last year your company celebrated its one hundred and twenty-fifth anniversary. Looking back over our history we have had varieties of fortune, but I am glad to say that despite the setback in 1955 your company is proud to feel that its property in Brazil is still such that many more years of working life can be expected, if economic conditions allow.

Due to strikes over a dispute as to the payment of an insalubrity bonus to all underground workers, the tonnage per man shift dropped from .458 tons in 1954 to .441 in 1955 in the Morro Velho mine. In the Raposos mine tons per man shift dropped from .660 in 1954 to .592 in 1955. As a consequence, tons crushed in 1955 dropped to 305,400 against 316,800 in 1954 and gold produced dropped to 3,225 kilos against 3,470 in 1954. The average grade for the two mines was 11.18 grammes (7.19 dwts.) as against 11.60 (7.46 dwts.) in 1954. Gold realized £1,348,317 in 1955 against £1,466,270 in the previous year. After providing £60,703 for depreciation and crediting profit on exchange £12,225 the net loss for the year is £145,803. In view of this, the Board has not felt justified in recommending the payment of a dividend on either the Preference stock or the Ordinary stock.

WORKING COSTS AND RECEIPTS

Working costs per ton increased to 90/9d. from 79/2d. in 1954 and developments to 3/1½d. from 2/4½d., whilst receipts from sales of gold and silver realized 88/8d. per ton against 92/11d. in 1954.

The first quarter of this year showed some improvement over the previous quarter and the accounts for April show a profit of some £4,000 for the month's working.

The total ore reserves at the end of the year of the Morro Velho and Espírito Santo mines were estimated at 6,221,188 tons of "developed" ore and 679,500 tons of "probable" ore, as compared with a total of 7,042,000 at the end of 1954, an overall decrease of 141,312 tons, although 305,503 tons of mineral were extracted in 1955.

Throughout the year under review the miners were uneasy, either through anticipation of the payment of the insalubrity bonus which was paid as from April 1955 or as a result of their non-eligibility for such payments. It is hardly necessary for me to emphasize that the attitude of labour is all-important in determining the success of the Company's operations and everything is being done to remove the causes of discontent. To this end, the arrangements for dealing with personnel questions have been revised and in July last a Public Relations Officer was appointed.

I am glad to say that the latter appointment is showing encouraging results. In recent months, therefore, labour relations have taken a turn for the better, but apart from a slight improvement in the output per man shift since the turn of the year, there is no evidence that the additional wages which miners have been receiving by way of insalubrity bonus since April last year, have brought lasting results. We all know it is all too easy to increase wages without a correspondingly increased output. In the Company's operations much depends upon the attitude of the Miners' Union or Syndicate.

Since the war we have had geological investigations carried out to ascertain the probable amount of iron ore. Preliminary conversations have taken place from time to time with several interested parties but at no time has there been submitted to us any definite proposition. If any proposal which the Board felt they could recommend to shareholders should be made, the shareholders would be notified immediately.

PROSPECTS

With regard to the future, you have been able to read in the Annual Report and Progress Reports, issued quarterly, that the Company had many difficulties in 1955. These reports showed some improvement in the first quarter of this year's working. In a country such as Brazil where currency inflation is in full swing despite every effort by the Government to stabilize the cost of living, it is difficult and indeed foolhardy to forecast what might happen. Production, the cost of goods and services, as well as the price at which we can sell the gold we mine, continue to control the situation. In its long history, the Company has successfully recovered from difficulties as great or greater than those we are now facing and I can only say that we hope that many more years of successful operation may lie before us.

The report and accounts were adopted.

FRONTINO GOLD MINES LTD.

The Annual General Meeting of Frontino Gold Mines, Limited, was held at Winchester House, Old Broad Street, E.C.2, on Tuesday last.

The Rt. Hon. Lord Rathcavan, P.C. (Chairman), who presided, in the course of his speech said—

The accounts for the year show a profit of £178,085 as against £47,306 in 1954, an increase of £130,779. The reason for the higher bullion proceeds is that an additional 6,500 ounces of gold, and 250 tons of lead concentrates were sold in the year, and the gold tax, which is deducted from the sale proceeds, was less by nearly £8,000.

With regard to the disposal of the profit the Board recommend the payment on July 11 of a final dividend of 2/- per share, free of income tax, on the Preference shares, and a final dividend of 2s. per £1 stock, free of income tax, on the Ordinary stock.

Production in 1955 amounted to 140,308 tons milled compared with 125,829 tons in 1954, and 75,850 ounces of gold and 50,602 ounces of silver were recovered as against 69,302 ounces gold and 52,543 ounces of silver last year, an increase of 6,548 ounces gold and a decrease of 1,941 ounces of silver. Once again this is a record output for the Company.

The total development in Silencio mine was 10,684 ft. and compares with 14,494 ft. last year. Of this development 1,398 ft. in the drives averaged 16.7 dwt. over a width of 81 ins. In the rises 939 ft. averaged 21.5 dwt. over 59 ins., and in the winzes 398 ft. averaged 21.2 dwt. over 51 ins., making a total of 2,735 ft. with an average of 19 dwt. over 69 ins.

In Cristales out of 850 ft. of development 460 ft. averaged 17.5 dwt. over 24 ins.; in Cogote (Patio) out of 2,039 ft. of development 1,215 ft. averaged 26.7 dwt. over 20 ins.; in Cogote (7 de Julio) out of 731 ft. of development 509 ft. averaged 30.2 dwt. over 16 in., and in Cecilia 725 ft. gave 570 ft. of an average value of 14.2 dwt. over 47 ins. The total of payable ore developed in all the mines was therefore 5,489 ft. of an average value of 19.6 dwt. over 47 ins., which compares with 4,265 ft. of an average value of 19.2 dwt. over 48 ins. last year, that is, an increase of over 1,200 ft. of 19 dwt. ore.

At December 31 the proved reserves were 287,094 mill tons in Silencio, 20,767 tons in Cristales, 24,836 tons in Cogote and 13,492 tons in Cecilia, making a total of 346,189 mill tons of an average value of 18.24 dwt. Last year the total was 212,845 mill tons of an average grade of 18.65 dwt., so that the figures this year show an increase of over 133,000 tons. In terms of gold content, the reserves may be said to contain about 117,000 ounces of gold more than at the end of 1954.

Despite the record tonnage of gold output in the year, all the mines showed substantial increases in the reserves.

SOUTH AMERICAN GOLD AND PLATINUM COMPANY

On May 9 last a communication was sent to shareholders advising that negotiations were in progress with the South American Gold and Platinum Company of New York, who have now made a proposal to the Board. Their proposal is an exchange of one U.S. \$10 Debenture in South American Gold and Platinum Company for each £1 Preference Share or £1 Ordinary Stock. These Debentures will be in Bearer form unless the South American Gold and Platinum Company decide that they should be in both registered or bearer form at the option of the shareholder. They will carry interest at 6% per annum, and will be repayable at par after eight years, i.e. on July 1, 1964, unless previously redeemed. If they are redeemed in the first year of issue they will carry a premium of 3%, in the second year the premium will be 2%, in the third year it will be 1%, and thereafter at par. If the Bonds are outstanding on July 1, 1960, a Sinking Fund of U.S. \$300,000 per annum will be allocated to the purchase or redemption of the Debentures. They will be secured by a second charge on certain quoted securities having a current market value of over \$16 million until June 30, 1959, when an existing Bank loan of U.S. \$4,800,000 will have been paid off. Thereafter they will be secured by a first charge on quoted securities always having a current market value of twice the amount of the Debentures which are then outstanding.

There is obviously much detail work still to be completed so that the actual offer will not be communicated to shareholders for some weeks, and it is hoped to send out the necessary forms early in September.

Bearing in mind that the sterling equivalent of the nominal value of each Debenture is about £3 11s., that they are well secured, and that suitable marking arrangements should be available as soon as possible both here and in New York, the Board have no hesitation in recommending shareholders to accept the proposals.

The report and accounts were unanimously adopted.

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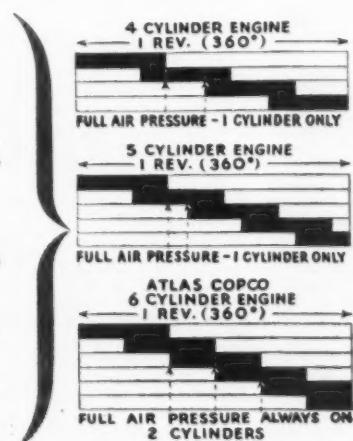
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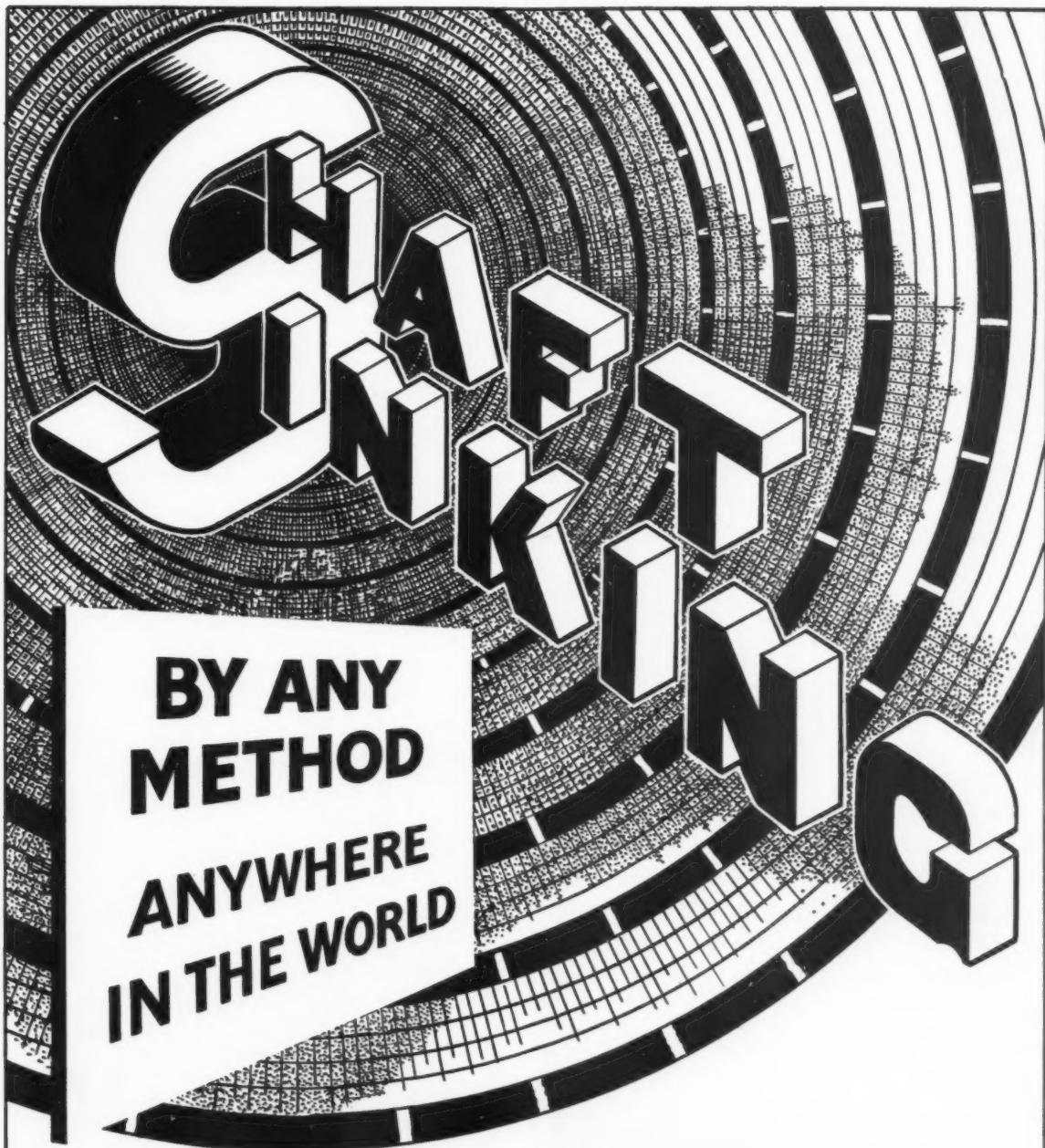
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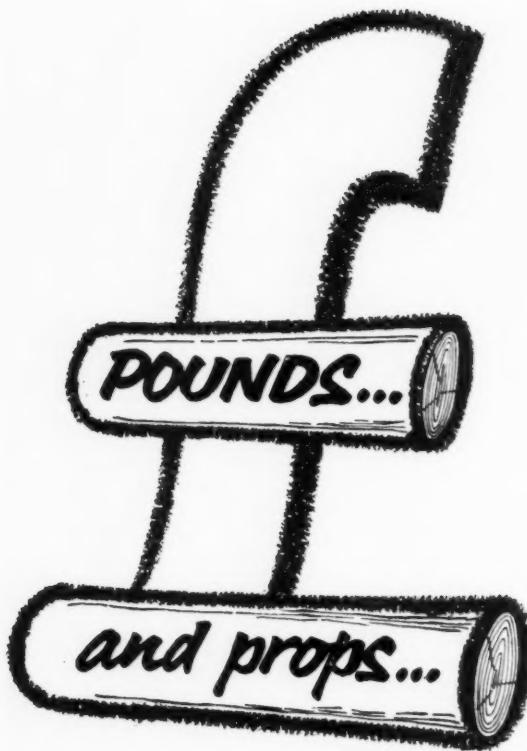
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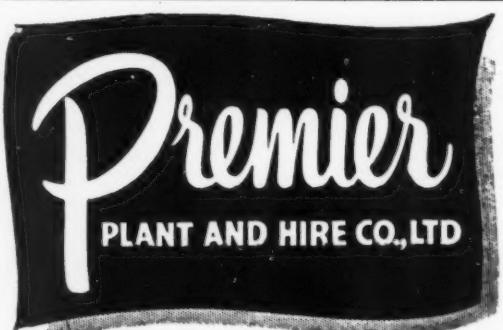
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